REPORT OF THE LAW REFORM COMMITTEE

ON

OPINION EVIDENCE

SINGAPORE ACADEMY OF LAW

LAW REFORM COMMITTEE

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About the Law Reform Committee

The Law Reform Committee ("LRC") of the Singapore Academy of Law makes recommendations to the authorities on the need for legislation in any particular area or subject of the law. In addition, the Committee reviews any legislation before Parliament and makes recommendations for amendments to legislation (if any) and for carrying out law reform.

About the Report

See Executive Summary below.

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"The testimony relating to this footing of the case has been profuse and illuminating. As too often happens, the experts disagree, leaving the problem, as Tennyson might say, dark with excessive brightness."

Per Jayne J in *International Pulverising Corp v Kidwell*.[1]

I. Introduction

A. Evidence of opinion generally excluded

1 It is an ancient rule of the common law that opinions, inferences or beliefs of witnesses are irrelevant and inadmissible as evidence to prove material facts. Out of necessity, an exception to this general rule emerged relatively early, making an expert's opinion admissible on subjects requiring special expertise.

2 Rules then developed at common law, which have been supplemented in most jurisdictions by supervening legislation, to regulate and control the admission and use of expert evidence. These rules were created to minimise the inherent danger that tribunals of fact, in most cases juries, will place undue emphasis on expert opinions and abdicate their ultimate responsibility to draw their own conclusions on all the relevant facts in dispute.

3 A striking illustration[2] of the significant dangers of over-reliance on expert evidence is the celebrated Australian case of *Chamberlain*.[3] In that case, almost entirely on the basis of expert testimony, the Chamberlains were wrongfully convicted in 1982 of murdering their daughter. A Royal Commission later cleared the Chamberlains, concluding that the expert evidence adduced at the trial was suspect and unreliable and the court's acceptance of that evidence had caused a miscarriage of justice.[4]

4 This case and the grave injustice that it resulted in is, of course, an extreme example and is not a good reason to view all expert evidence with circumspection. It is undeniable, however, that whenever expert evidence is in play, there is an inevitable risk that the tribunal's principal focus will shift from dealing with the facts in issue to

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1 71 A 2d 151 at 156 (1950). Cited in Rt Hon Sir Robert Megarry (Bryan A Garner gen ed), *A New Miscellany at Law: Yet Another Diversion for Lawyers and Others* (Hart Publishing, 2005) at p 238.

2 For more examples drawn from English case law, see Law Commission of England and Wales, *The Admissibility of Expert Evidence in Criminal Proceedings in England and Wales: A New Approach to the Determination of Evidentiary Reliability* (Consultation Paper 109, 2009) at paras 2.13–2.23.

3 *Chamberlain v The Queen (No 2)* [1984] HCA 7, (1984) 153 CLR 521.

4 Royal Commission of Inquiry into the Chamberlain Convictions (Commonwealth Parliamentary Paper No 192, 1987) at p 338.

trying to resolve the conflicts between competing expert testimony.[5] Quite apart from the risk that inadequately filtered expert evidence will not assist the court in determining the key issues, expert evidence received in this uncontrolled manner also results in prolonging trials and increasing costs.

5 Having said that, the advantages of receiving expert evidence in appropriate cases cannot be gainsaid. There is immense value in receiving objective, unbiased and reliable expert evidence on scientific and technical issues not within the common understanding of the trier of fact. Such evidence assists the trier of fact to interpret the evidence and determine factual issues before it. Such evidence is an essential tool in ensuring rectitude of decision, which is after all one of the overarching objectives of adjectival law.

B. Reception of opinion evidence

6 The main rules governing the admission and use of expert evidence at common law are as follows:

(a) The evidence must derive from a "field of expertise";

(b) The witness must be an expert in that field;

(c) The opinion must be relevant to a fact in issue;

(d) The opinion must not be in respect of a matter of "common knowledge";

(e) The opinion must not be in respect of an "ultimate issue";

(f) The expert must disclose the facts (usually assumed) upon which the opinion is based;

(g) The facts upon which the opinion is based must be capable of proof by admissible evidence;

(h) Evidence must be adduced to prove the assumed facts upon which the opinion is based; and

5 See the minority judgment of Dawson J in *Murphy v R* (1989) 167 CLR 94.

(i) If adduced against a criminal defendant, the evidence must be more probative than prejudicial.[6]

7 In Singapore, the admission of expert evidence is regulated by section 47 of the Evidence Act which provides as follows:

> **Opinions of experts**
>
> 47. — (1) When the court has to form an opinion upon a point of foreign law or of science or art, or as to the identity or genuineness of handwriting or finger impressions, the opinions upon that point of persons specially skilled in such foreign law, science or art, or in questions as to the identity or genuineness of handwriting or finger impressions, are relevant facts.
>
> (2) Such persons are called experts.

C. Terms of reference

8 Against that background, we have reviewed Singapore's rules of evidence on four aspects relating to the reception of expert testimony to consider whether there are any inadequacies or uncertainties that require reform in those rules and if so, to propose reforms taking into consideration developments in this area in other common law jurisdictions.

9 The specific exclusionary rules and principles that we have reviewed are those pertaining to:

(a) The common knowledge rule;

(b) The field of expertise rule;

(c) The expertise rule; and

(d) The basis rule insofar as it involves expert evidence based on hearsay.

D. Summary of recommendations

10 As a result of our review, and against the background set out above, we recommend that section 47 of the Evidence Act be amended to read as follows:

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6 See Stephen J Odgers and James T Richardson, "Keeping Bad Science out of the Courtroom – Changes in American and Australian Expert Evidence Law" [1995] UNSWLawJl 6; (1995) 18(1) University of New South Wales Law Journal 108.

Opinions of experts

47. —(1) When the court ~~has to form an~~ is likely to derive substantial assistance from an opinion upon a point of ~~foreign law or of science or art, or as to the identity or genuineness of handwriting or finger impressions~~ scientific, technical or other specialised knowledge, such an ~~the~~ opinion~~s upon that point of persons specially skilled in such foreign law, science or art, or in questions as to the identity or genuineness of handwriting or finger impressions are~~ is a relevant fact~~s~~.

(2) ~~Such p~~Persons with such specialised knowledge or skill based on training, study or experience are called experts.

(3) The opinions of an expert may be relevant facts even if the opinions relate to a matter of common knowledge.

11 We make this recommendation for the detailed reasons set out in this report but which can be summarised as follows:

(a) The amendments make the test of "assistance" and not "necessity" the overarching basis of admissibility of expert evidence.

(b) However, to guard against the danger of letting in too much expert evidence or expert evidence of marginal utility, the assistance which the court expects to derive must be "substantial". Further, the court must consider it "likely" that the opinion will render the requisite level of assistance.

(c) The replacement of specified, enumerated fields of expertise with the general phrase "scientific, technical or other specialised knowledge" will broaden the types of evidence which may be admitted by precluding arguments that expert evidence arising out of fields of expertise not listed in section 47 are *ipso facto* inadmissible. This inclusionary rule ought to be subject to safeguards to ensure admission of only reliable evidence arising from novel fields of scientific endeavour. But we recommend that these safeguards should not be legislated but should be judicially developed so as to cater for developments in science and technology.

(d) This inclusionary rule should also be subject to an express exclusionary discretion permitting the court to exclude otherwise admissible evidence if it is unfairly prejudicial, misleading or confusing or will lead to an undue waste of judicial time.[7] However, as that exclusionary discretion will cut across all categories of admissible evidence and not just expert

7 See Rule 403 of the Federal Rules of Evidence (US).

evidence, we have not suggested the shape that that exclusionary discretion should take other than drawing attention to section 135 of the Australian Uniform Evidence Acts.

(e) The amendments make clear that the common knowledge rule is no long in itself a bar to admissibility if the new section 47(1) criteria are otherwise met. Thus the new section 47(3) acknowledges that "the mere fact that lay persons have a common sense perspective on some issues does not necessarily mean that an expert opinion on that issue will not be permitted".[8] Such evidence will now be permitted if the "substantial assistance" test is met to the required degree of certainty.

(f) We do not recommend amending section 47 to permit experts to give opinions which are substantially but not entirely based on their expert knowledge as has, on one view, been done in Australia.

(g) The difficulties caused by the intersection of the hearsay rule and the basis rule in excluding highly reliable opinion evidence if the factual basis is not made out by admissible evidence need to be addressed as part of an overall overhaul of the hearsay regime under the Evidence Act. This is the model which has been adopted in England (in civil cases), in Australia and in the United States. This overarching solution is therefore beyond the scope of this paper.

(h) The weight of authority is that there is no strict basis rule in Singapore at common law. Any failure to establish, or to establish satisfactorily, the underlying basis on which an expert opinion rests therefore goes only to weight and not admissibility of the expert opinion. There is therefore no need to modify this rule by legislation.

12 Before considering in detail the reasons for these recommendations, however, it is necessary to make some preliminary remarks on the law of evidence in Singapore.

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8 See Stephen J Odgers and James T Richardson, "Keeping Bad Science out of the Courtroom – Changes in American and Australian Expert Evidence Law" [1995] UNSWLawJl 6; (1995) 18(1) University of New South Wales Law Journal 108.

II. Some Observations on the Evidence Act

A. Introduction

13 The principal source and starting point for the law of evidence in Singapore is obviously the Evidence Act (Cap 97, 1997 Rev Ed). In civil litigation, the rules of evidence found in the Act are supplemented by the Rules of Court.[9]

14 The Evidence Act is a comprehensive code which repeals all inconsistent rules of evidence at common law.[10] This is not to say, however, that the common law of evidence has no place in Singapore's law of evidence. The Evidence Act does not repeal *all* common law rules of evidence,[11] merely those that are inconsistent with the rules of evidence set out in the Act. Common law rules which are *not* inconsistent with the Evidence Act are therefore *not* repealed by the Evidence Act.[12]

15 A thorough textual knowledge of the Evidence Act is not enough, however, to have a thorough grasp of the scheme of the Act. Simply reading the Evidence Act with modern eyes and without an appreciation of its history is a recipe for confusion, at least until the entire Act is overhauled, rationalised and modernised.

16 Until then, it must be appreciated that the Act differs from the modern law of evidence in the common law world in two significant senses, both of which are the result of its history as Victorian legislation:[13]

(a) The Evidence Act uses "relevant" in an archaic sense. The reader must translate that word into modern language to understand the true effect of the Act; and

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9 In particular, see O 38 of the Rules of Court and also the potential hearsay exception contemplated by para 18 of the standard form Summons for Directions found in Form 44 of the Rules of Court. In criminal litigation, the rules of evidence set out in the Evidence Act are supplemented by the Criminal Procedure Code and in particular, Chapter XXXVIII of the Criminal Procedure Code (Cap 68, 1985 Rev Ed).

10 See s 2(2) Evidence Act (Cap 97, 1997 Rev Ed).

11 See Margolis, "The Concept of Relevance" (1990) 11 Sing LR 24 at 26 which draws the comparison between s 2(1) of our Evidence Act (Cap 97, 1997 Rev Ed) with the original s 2(1) (repealed in 1938) of the Indian Evidence Act 1872. The latter section repealed in India *all* common law rules of evidence, not merely those which were inconsistent with the Act.

12 It is a nice question, but beyond the scope of this Paper, to consider to what extent the Evidence Act and the common law are "inconsistent" when one is silent in an area in which the other has an established body of rules or where there is an established body of overlapping rules in both domains.

13 Much of this section of this article is drawn from Margolis, "The Concept of Relevance" (1990) 11 Sing LR 24 at 26, a thorough reading of which is commended to each advocate.

(b) The Evidence Act, broadly speaking, casts the law of evidence as a set of inclusionary rules rather than a set of exclusionary rules.

B. "Relevant" means "admissible"

17 The Evidence Act was drafted on Stephen's idiosyncratic view that there should be no distinction between the concepts of relevance and admissibility. Therefore the Act attempts to define relevance as an intrinsic, ever-present connection between two facts rather than accepting that it is a process leading to a conclusion. Thus, the Evidence Act says that "One fact is said to be relevant to another when the one is connected with the other in any of the ways referred to in the provisions of this Act relating to the relevancy of facts".[14] Having set out a general definition in this way, Part I of the Evidence Act goes on to set out section after section of facts which the Act statutorily deems to be "relevant".

18 Section 47 of the Evidence Act is one such section. This section governs the *admissibility* of opinion evidence but achieves this effect by deeming opinion evidence to be "*relevant*" in certain specified circumstances.

19 Modern evidence law makes no attempt in this way to define what is "relevant". The word "relevant" is today used not in this closed sense but in a broad general sense to mean "rationally probative". What is relevant, in the modern sense of being "rationally probative", necessarily varies from case to case and issue to issue and is not susceptible to being enumerated in legislation.

20 Instead of trying to prescribe relevance by statute, modern evidence law draws clearly the distinction between relevance and admissibility. Determining what is *relevant* is the province of reason and human experience. Determining what is *admissible* is the province of the law of evidence. Relevance is a prerequisite to admissibility but it is, in all but the most general of senses, outside the legitimate scope of legislative definition.

21 Thus, at common law, "Evidence is relevant if it is logically probative or disprobative of some matter which requires proof; … relevant (*ie* logically probative or disprobative) evidence is evidence which makes the matter which requires proof more or less probable".[15]

22 A good statutory definition of relevance in this broad conceptual sense is found in section 55(1) of the Australian Evidence Act 1995 ("the Uniform Act") which provides as follows:

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14 See s 3(2) of the Evidence Act (Cap 97, 1997 Rev Ed).

15 *Director of Public Prosecutions v Kilbourne* [1973] AC 729 at 756 *per* Lord Simon of Glaisdale.

> **Relevant evidence**
>
> (1) The evidence that is relevant in a proceeding is evidence that, if it were accepted, could rationally affect (directly or indirectly) the assessment of the probability of the existence of a fact in issue in the proceeding.

23 Similarly, Rule 401 of the Federal Rules of Evidence in the Unites States ("the Federal Rules") provides as follows:

> **Rule 401. Definition of 'Relevant Evidence'**
>
> 'Relevant evidence' means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.

24 Instead of the modern concept of relevance, the Evidence Act relies on the concept of the "fact in issue". Under section 5 of the Act, *only* evidence of facts in issue and of other facts deemed to be "relevant" by the Act may be adduced. The Evidence Act prohibits all other evidence from being adduced.

25 It is for this reason that section 47 of the Evidence Act operates not only by deeming opinions to be "relevant" in the circumstances specified, but by deeming opinions in those circumstances paradoxically to be "relevant *facts*".

26 A "fact in issue" is defined to include "any fact from which either by itself or in connection with other facts the existence, non-existence, nature or extent of any right, liability or disability asserted or denied in any suit or proceeding necessarily follows". But again, by focusing the definition on the fact to be proved rather than the process of inference which that fact triggers once proved, the statutory definition obscures rather than reveals.

27 Understanding the word "relevant" and its cognate expressions in the modern sense of "logically probative" when they are used in the Evidence Act is a recipe for confusion. Not only must the reader substitute the word "admissible" for "relevant", he must also remember that *logical* relevance in the modern sense remains an unspoken but essential requirement that must be established in addition to the other "relevance" requirements set out in those sections.

28 This potential for confusion is compounded by the fact that modern legislative additions to the Evidence Act[16] do use the word "relevant" in the modern sense in contradistinction to "admissible".[17] This means that those newer provisions cannot be

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16 And in the sphere of criminal evidence, to the Criminal Procedure Code.

17 See, for example, s 35 of the Evidence Act (Cap 97, 1997 Rev Ed) dealing with computer output which uses both terms in the modern sense. See also O 38 r 2(5), O 38 r 5 and O 38 r 10(1).

read in the same way as the Act's original provisions. In these modern provisions, the word "relevant" must be read in its modern sense of "logically probative".

29 In amending Part I of the Evidence Act, therefore, the law reformer must make a conscious choice between on the one hand maintaining consistency by using "relevant" in this idiosyncratic and archaic sense and on the other hand attempting to modernise the Act, albeit on a piecemeal basis, by drawing the now orthodox distinction between relevance and admissibility.

C. Everything that's not in is out

30 The second difference between the Evidence Act and modern evidence law is that the Evidence Act admits only evidence which the Act renders admissible (or "relevant" in the language of the Act). In other words, the Evidence Act establishes the law of evidence in Singapore as a series of *inclusionary rules* with a few exclusionary rules bolted on rather than as a set of exclusionary rules.

31 The scheme of the Act, therefore, is to admit *only* permitted classes of evidence, precluding the reception of all other classes. Unless evidence comes within an express inclusionary rule in the Evidence Act, therefore, that evidence cannot be received by the court. According to section 5 of the Evidence Act, therefore, "Evidence may be given in any suit or proceeding of the existence or non-existence of every fact in issue and of such other facts as are hereinafter declared to be relevant, *and of no others*" [emphasis added].[18]

32 Modern evidence law is based on quite opposite premise.

33 Modern evidence law is based on the principle that all relevant evidence is freely admissible subject only to exclusionary rules which have been carved out to ensure reliability,[19] to prevent unfair prejudice[20] or to uphold an important principle of public policy.[21]

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18 See s 5 of the Evidence Act (Cap 97, 1997 Rev Ed).

19 For example, the rule mandating direct evidence.

20 For example, the discretion to exclude evidence of past misconduct where the prejudicial effect will outweigh the probative value of the evidence.

21 For example, the protection from compulsory disclosure which covers material subject to legal professional privilege.

34 Thus, section 56 of the Australian Uniform Evidence Act provides as follows:

> **Relevant evidence to be admissible**
>
> (1) Except as otherwise provided by this Act, evidence that is relevant in a proceeding is admissible in the proceeding.
>
> (2) Evidence that is not relevant in the proceeding is not admissible.

35 Similarly, Rule 402 of the United States Federal Rules of Evidence provides as follows:

> **Rule 402. Relevant Evidence Generally Admissible; Irrelevant Evidence Inadmissible**
>
> All relevant evidence is admissible, except as otherwise provided by the Constitution of the United States, by Act of Congress, by these rules, or by other rules prescribed by the Supreme Court pursuant to statutory authority. Evidence which is not relevant is not admissible.

36 While it does no harm for the law reformer to view the law of evidence in Singapore through modern spectacles as a series of exclusionary rules, he must never lose sight of this fundamental difference between our evidence law and that of most other foreign jurisdictions. An understanding of this fundamental aspect of our evidence law is essential lest it make a material difference in the interstices between exclusionary rules and inclusionary rules. It is also essential to bear this essential difference in mind when translating into the local context principles drawn from cases, articles or law reform reports from foreign jurisdictions which adopt the modern approach to the law of evidence.

D. Conclusion

37 In making our recommendations, therefore, we have been conscious of the difficulties of integrating concepts drawn from the modern evidence scholarship and provisions drawn from modern evidence legislation into our Evidence Act.

38 We have chosen to maintain consistency by continuing to use "relevant" in its idiosyncratic sense in our proposed amendments to the Evidence Act. We have also chosen to maintain the scheme of the Act as a set of inclusionary rules. We do not, therefore, propose to insert a section establishing the general principle that opinion evidence is *prima facie* inadmissible.

III. The Common Knowledge Rule

A. The rule

39 The first question to be determined when an expert opinion is proferred on a particular issue in an ostensible attempt to assist the tribunal of fact is whether the tribunal of fact requires assistance in the determination of that issue.

40 In *R v Bonython*,[22] King CJ explained the court's approach as follows:

> Before admitting the opinion of a witness into evidence as expert testimony, the judge must consider and decide two questions. The first is whether the subject matter of the opinion falls within the class of subjects upon which expert testimony is permissible. This first question may be divided into two parts: (a) *whether the subject matter of the opinion is such that a person without instruction or experience in the area of knowledge or human experience would be able to form a sound judgment on the matter without the assistance of witnesses possessing special knowledge or experience in the area* and (b) whether the subject matter of the opinion forms part of a body of knowledge or experience which is sufficiently organised or recognised to be accepted as a reliable body of knowledge or experience, a special acquaintance with which of the witness would render his opinion of assistance to the court. The second question is whether the witness has acquired by study or experience sufficient knowledge of the subject to render his opinion of value in resolving the issue before the court.[23] [emphasis added]

41 The first part of the first question, underlined above, is what is commonly referred to as the "common knowledge" rule.

42 The common knowledge rule bars the admission of expert evidence on matters that the tribunal of fact is well-equipped to decide based on its own common sense and everyday experience and without the assistance of expert knowledge. Another formulation of the rule is that "expert evidence is confined to those matters on which it is necessary in order to assist the court to determine the issues".[24]

43 The purpose of this rule is to preserve the integrity of the decision-making process of the tribunal of fact. It is not designed to filter out inaccurate, invalid or inexpert evidence. Therefore, the common knowledge rule operates to exclude opinion evidence even if the evidence is extremely reliable.

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22 [1984] SASR 45 at 46. Cited with approval in *The Ardent* [1997] 2 Lloyd's Rep 547 at 597; and in *Barings plc (in liquidation) v Coopers & Lybrand, et al* Lexis transcript 9 February 2001(unreported), Evans-Lombe J at [35].

23 This is the expertise rule and is considered further below.

24 *Murphy on Evidence* (Oxford University Press, 8th Ed, 2003).

44 The common knowledge rule generally excludes expert testimony on issues such as:

(a) credibility of witnesses (save in exceptional cases);[25]

(b) capacity to form intent in murder (when the defences of insanity and diminished responsibility are not raised);[26]

(c) the operation of memory;[27] and

(d) the processes of identification.[28]

B. Position in England

45 In England, the common knowledge rule continues to apply and is applied relatively rigorously. This is despite the fact that the common law as to the admission of expert evidence in England is increasingly being rationalised and placed on a statutory footing. These statutory provisions are found, for example, in the Civil Evidence Act 1972 and Rule 35 of the Civil Procedure Rules 1998 for civil cases and in the Police and Criminal Evidence Act 1984 and the Criminal Justice Act 1988 for criminal cases. None of these statutory provisions have made any inroads into the common knowledge rule at common law.

46 The case of *R v Turner*[29] stands as the main authority for the common knowledge rule at common law. In *Turner*, the defendant was charged with murdering his girlfriend and raised the defence of provocation. He alleged that he had committed the crime in a fit of blind rage when she confessed that she had been unfaithful to him.

47 The defence sought to adduce expert testimony for three purposes. First, to establish that the defendant lacked intent; second, to establish that the defendant was of a nature to be easily provoked; and third, to bolster the defendant's credibility.

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25 *R v Turner* (1974) 60 Cr App Rep 80.

26 *R v Chard* (1971) 56 Cr App Rep 268.

27 *R v Fong* [1981] Qd R 90.

28 *Smith v R* (1990) 64 ALJR 588; see also *R v Land* [1988] 1 All ER 403: paediatric expert evidence rightly excluded on issue of whether a child in an indecent photograph was below the age of 16.

29 (1974) 60 Cr App Rep 80.

48 Lawton LJ upheld the trial judge's refusal to accept a psychiatrist's report on these issues and reiterated the common knowledge rule as laid down by the case of *Folkes v Chadd*[30] as far back as 1782. He said:[31]

> An expert's opinion is admissible to furnish the court with scientific information which is likely to be outside the experience and knowledge of a judge or jury. If on the proven facts a judge or jury can form their own conclusions without help, then the opinion of an expert is unnecessary.

49 Since the defendant in *Turner* was not suffering from any mental illness, the Court of Appeal was of the view that the jury did not *need* expert assistance on the issue because the way he was likely to react to his girlfriend's distressing news was a matter well within ordinary human experience. Admitting expert evidence on the point would merely usurp the function of the jury. Lawton LJ went on to say:

> Jurors do not need psychiatrists to tell them how ordinary folk who are not suffering from and mental illness are likely to react to the stresses and strains of life.

50 Subsequent English authorities suggest that the English courts are willing to relax the application of the rule in cases of *temporary* mental derangement in individuals who are otherwise not mentally ill. Thus, in *R v Toner*,[32] the English Court of Appeal held that expert evidence should have been admitted on the issue of whether the defendant was able to form specific intent to commit murder while in a hypoglycaemic state. The acceptance of expert evidence in this case is best explained on the basis that although the defendant was free of permanent mental illness, his hypoglycaemic state resulted in a temporary abnormal condition that had an impact on his mental state[33] and took it outside the experience and knowledge of a judge or jury.

51 Subsequent English authorities have also shown that the English courts will relax the application of the rule in cases of mental retardation as opposed to mental illness. In *Masih*,[34] the Lord Chief Justice Lord Lane drew a distinction between defendants who are mentally retarded with an IQ at or below the psychologists' cut-off point of 69 and those with an IQ higher than that.

52 In the former class of defendants, expert evidence in relation to their intent (without proof of mental illness) may be admissible since that is evidence on a matter which is abnormal and outside the experience of ordinary jurors. The latter class of defendants, however, is said to fall within the scale of normality and therefore expert

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30 (1782) 3 Doug KB 157.

31 (1974) 60 Cr App Rep 80 at 83.

32 (1991) 93 Cr App R 382.

33 *Cross and Tapper on Evidence* (Oxford University Press, 10th Ed, 2004).

34 [1986] CrimLR 395.

evidence of their mental workings must be excluded. Following this case, the cut-off point of 69 has become the threshold for admissibility of such expert evidence in England.

53 But even this relaxation is applied quite stringently. In the recent case of *R v Nigel Henry*[35], the Appellant had an IQ of roughly 71 and was convicted of procuring murder and conspiracy to murder. The Court of Appeal held that expert evidence on the issue of intention or to prove the defendant's credibility was rightly excluded since the defendant's IQ did not fall below the accepted threshold.

54 A more relaxed attitude to the application of the *Turner* principle can however be discerned from the English authorities dealing with the reliability of out-of-court confessions. In *R v Blackburn*[36] the Court of Appeal allowed a consultant forensic psychologist to testify on the phenomenon of false confessions and how a vulnerable individual after prolonged questioning may give a "coerced complaint confession". The Court was of the view that, even in the absence of a mental abnormality or disorder, such a phenomenon was a matter outside the ordinary experience of a jury.

55 English authorities on confessions are not however a good guide to the scope of the common knowledge rule as it is generally applied. Many of these decisions are partly influenced by the specific statutory provisions of the Police and Criminal Evidence Act 1984 and the focus in that statute on the need for fairness to the accused.

56 This line of authority[37] is therefore best seen as a branch of the law relating to the admissibility of confessions and the special care which the English courts take to ensure reliability of confessional evidence. Bearing that in mind, the English approach in this subset of the common knowledge rule is not markedly different from the approach in the Australian case of *Murphy* discussed below.

57 The English courts have also been less rigid in applying the common knowledge rule when dealing with expert evidence relating to accident reconstruction. In the case of *R v Dudley*,[38] the defendant was convicted of murder following a severe collision between a stationary police vehicle and the defendant's vehicle. The appellant alleged that the collision was not deliberate but merely an accident which occurred when he attempted to pass the parked police vehicle on its nearside.

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35 [2005] EWCA Crim 1681.

36 [2005] EWCA Crim 1349.

37 *R v O'Brien*, *R v Blackburn*, *R v Raghip* and *R v Ward* (1993) 96 Crim AppRep and cases which have followed or applied it.

38 [2004] EWCA Crim 3336.

58 Having cited *Turner*, the Court of Appeal stated that this was a case in which "a jury might legitimately have been assisted" by expert evidence and did not insist that the evidence pass the test of *necessity*. The Court said that although members of the jury would have experience of roads and how to avoid accidents, the expert had greater experience of such matters and that the evidence should therefore have been allowed.

59 Despite these areas where the rule is relaxed, it is still true to say, however, that the common knowledge rule as embodied in *Turner* is strictly adhered to in English common law. This strict adherence is undoubtedly driven by the fact that the jury system is still intact in England in criminal trials. The underlying concern is that lay jurors who should be the ultimate arbiters on all factual issues and on the credibility of witnesses will attach undue weight to the impressive scientific qualifications of experts and defer to their opinions on matters of human nature and behavior which jurors are perfectly well equipped to decide, and which is their responsibility to decide, on their own.

C. Position in Australia – Australian Law Reform Commission proposals

60 In Australia, the law of evidence applied in the Federal Courts and the Australian Capital Territory is encapsulated in the Evidence Act 1995 (Cth). New South Wales, Tasmania and Norfolk Island have also enacted almost identical legislation. The New South Wales legislation and the Commonwealth legislation are together described as the Uniform Evidence Acts. The Uniform Acts were the product of 15 years of review of the existing law of evidence by the Australian Law Reform Commission ("ALRC").

61 After lengthy consultations, the Australian Law Reform Commission published an *Interim Report on the Law of Evidence* in 1985. This Report noted the following deficiencies of the existing common knowledge rule:

(a) Inconsistency – The courts were using different formulations of the rule to decide if evidence should be excluded on this ground. Some propounded that mere existence of an area of common knowledge precluded reception of the evidence while other courts went further to assess if the tribunal of fact would be "competent" to reach an informed decision without the advantage of the opinions, before excluding the evidence.

(b) Uncertainty – It was not possible to clearly define what constitutes common knowledge as the concept assumes the existence of an "ordinary man" who knows about all "ordinary things". Like the "reasonable man on the Clapham omnibus" these concepts defy definition.

(c) Lack of justification – There was no justification in denying tribunals of fact access to expert evidence on subjects on which the tribunals may

> merely have some cursory knowledge. Because of the cursory nature of that knowledge, the tribunals could derive much valuable assistance from experts who had a much more profound understanding of the subject.

62 Instead of the common knowledge rule, the Interim Report recommended applying the following test:

> Can the trier of fact usefully receive assistance on this point from the witness?

63 The Australian Law Reform Commission's Final Report approved the Interim Report's findings on this issue and the draft legislation contained therein expressly abolished the common knowledge rule.[39]

64 Thus, section 80(b) of the Uniform Evidence Acts provides:

> Evidence of an opinion is not inadmissible only because it is about a matter of common knowledge.

65 The "useful assistance" test however was not expressly incorporated in the draft legislation. Save for some other amendments, the Australian Law Reform Commission's draft legislation was adopted and forms the basis of the Uniform Acts. The Acts expressly provide that inconsistent common law rules are no longer binding.[40]

66 Although the Uniform Acts were not brought into effect until 1995, developments in the Australian courts during the Australian Law Reform Commission review period mirrored their proposals. The courts were beginning to be more relaxed in their application of the common knowledge rule and in effect using the "usefully receive assistance" test proposed.

D. Position in Australia – common law

67 The starting point in Australia on the traditional formulation of the common knowledge rule is usually taken to be the judgment of Dixon CJ in *Clark v Ryan*:[41]

> The rule of evidence relating to the admissibility of expert testimony as it affects the case cannot be put better than it was by JW Smith in the notes to *Carter v Boehm*, 1 Smith LC, 7th ed (1876) p 577. 'On the one hand' that author wrote, 'it appears to be admitted that the opinion of witnesses possessing peculiar skill is admissible whenever the subject-matter of inquiry

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39 The Australian Law Reform Commission, *Evidence* (ALRC Report 38, 1987).

40 See ss 8 and 9 of the Uniform Evidence Acts (Aust).

41 (1960) 103 CLR 486.

> is such that inexperienced persons are unlikely to prove capable of forming a correct judgment upon it without such assistance, in other words, when it so far partakes of the nature of a science as to require a course of previous habit, or study, in order to the attainment of a knowledge of it'.

68 In that case, the Plaintiff called at trial a witness on accident reconstruction who was allegedly an expert in that area. The High Court held that such evidence should not have been allowed, stating that some of this evidence was "an attempt to guide the jury upon matters which it was within the ordinary capacity of jurors to determine for themselves".

69 However more recent Australian authorities have moved away from that strict formulation of the common knowledge rule especially in the criminal law. In the landmark case of *Murphy v R*[42] the majority of the High Court of Australia accepted that the essence of the common knowledge rule was that before expert evidence is admitted it must be established that the matters raised were outside the experience and knowledge of the judge and jury.

70 However, the High Court denounced the English *Turner* approach that drew an artificial distinction between "normal" and "abnormal" defendants stating that:

(a) It assumes that "ordinary" or "normal" has some clearly understood meaning and, as a corollary, that the distinction between normal and abnormal is well recognised;

(b) It assumes that the commonsense of jurors is an adequate guide to the conduct of people who are "normal" even though those people may suffer from some relevant disability; and

(c) It assumes that the expertise of psychiatrists (or, in the present case, psychologists) extends only to those who are "abnormal".

71 In *Murphy*, the defence sought to adduce expert evidence to show that the defendant was of limited intellectual capacity and that his confessions to the police were unreliable as he would not have properly comprehended the questions put to him by the police and could not have expressed himself in the manner attributed to him in the police record.

72 The majority of the High Court held that the expert evidence ought to have been allowed for this purpose. Deane J stated that expert psychological evidence was admissible to prove the defendant was suffering from a significant impairment in

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42 *Murphy v R* (1989) 167 CLR 94.

intellectual functioning when it had a bearing on the reliability of a confessional statement although the impairment did not take the defendant out of the "normal" range. He also stated the expert evidence adduced "could well have been of considerable assistance to the jury".

73 In the case of *Runjanjic and Kontinnen v R*,[43] a case involving domestic violence, expert evidence that debunked the general misconceptions shared by ordinary jurors about the psychological effects of battering upon spouses was admitted. The South Australian Court of Criminal Appeal overtly emphasised the assistance that could be derived from "an overall understanding of the circumstances of the case by admitting such expert evidence, rather than upon whether the impact of longstanding domestic violence was known to ordinary members of the community".[44] Here the expert evidence was counter-intuitive and was extremely probative and valuable.

74 The expert evidence in this case was on a subject matter in which society's general perception on the issue were not necessarily accurate and were probably influenced by prejudices and misimpressions. In cases such as this, the so-called "common knowledge" of the jurors may in fact be erroneous while the truth may be profoundly counter-intuitive. A flexible and realistic application of the common knowledge rule is imperative to cater for these situations. This shift of emphasis by the Australian courts to whether the jurors would receive "useful assistance" from the expert evidence had in effect removed much of the bite of the common knowledge rule even prior to the passing of the Uniform Acts.

E. Position in Australia – Australian Law Reform Commission review of the Uniform Acts

75 In July 2004, almost 10 years after the Uniform Acts came into effect, the Australian Law Reform Commission was asked to review the operation of the Acts. One of the specific areas the Australian Law Reform Commission was asked to look at was the opinion rule and its exceptions.

76 Following this further review, the Australian Law Reform Commission published their Final Report 102 in 2005. This Report takes note of the following submissions raised regarding the problems that arise from the abolition of the common knowledge rule:

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43 (1991) 53 A Crim R 362.

44 Ian Freckelton, "Expert Evidence and the Role of the Jury" 1994 ABR LEXIS 15.

(a) Unnecessary time and expense was being used to deal with evidence on matters such as motor vehicle accident reconstructions which was previously inadmissible by virtue of the common knowledge rule.[45]

(b) The hearing of cases was being unnecessarily lengthened also by attempts to introduce expert opinion by psychologists on factors affecting the accuracy of eyewitness identification and expert evidence on "facial mapping" using data from facial recognition information technology which would previously have been excluded.[46]

(c) There is a "high risk that juries might rely on, or afford particular probative value to, expert evidence on matters of common knowledge" and that the discretionary powers of section 135 are insufficient to protect against the perceived risk.[47]

(d) Difficulties arise when an expert strays outside his field of expertise and the jury gives undue weight to that opinion.

77 While acknowledging the above criticisms, however, the Australian Law Reform Commission recommended that the common knowledge rule not be reintroduced for the following reasons:

(a) The abolition of the common knowledge rule removes the difficulty of admitting useful evidence such as evidence from psychologists and psychiatrists on human behaviour or on child development that was previously of doubtful admissibility.

(b) Evidence that is partly based on specialised knowledge and partly on matters of common knowledge is now admissible as long as the evidence is substantially based on expert knowledge.[48]

(c) The common knowledge rule in itself does not prevent experts straying outside their field of expertise since the problem arises even in jurisdictions such as Victoria where the common knowledge rule still applies. The mechanism for controlling such evidence lies in a strict application of section 79 which confines the scope of admissible expert

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45 Australian Law Reform Commission, "Review of the Evidence Act 1995" IP 28 (2004) at [6.52] and *Clark v Ryan* (1960) 103 CLR 486.

46 *R v Smith* (2000) 116 A Crim R 1.

47 Law Institute of Victoria, Submission E 116, 27 September 2005.

48 Section 79 read with s 80(b) of the Uniform Evidence Acts (Aust). See also *Velvevski v The Queen* (2002) 76 ALJR 402.

opinion to evidence that is wholly or substantially based on that person's expert knowledge. Also the first threshold to be crossed, the requirement of relevance,[49] may not be satisfied if the expert strays so far outside his field and his evidence is based primarily on matters of common knowledge. In such a case it can be argued that the evidence is no longer capable of rationally affecting the assessment of the probability of the existence of a fact in issue.

(d) The discretionary powers contained in sections 135–137 are an adequate safeguard to exclude evidence on matters of common knowledge when necessary.

78 The position of the common knowledge rule in Australia under the Uniform Evidence Acts can therefore be broadly characterised as an inclusionary rule on the basis of useful assistance rather than need, with an exclusionary discretion.

F. Position in New Zealand

79 The common knowledge rule also forms part of the common law of New Zealand.[50]

80 In August 1999 the Law Commission of New Zealand ("NZLC") recommended the express abolition of this rule by statute and its replacement with a "substantial helpfulness" test which was already being applied by the courts in some cases.[51]

81 However, the draft Evidence Code proposed by the NZLC was not enacted as law in New Zealand until 2006 and did not come into force until 1 August 2007.[52]

82 In the meantime, despite the lack of legislative reform, the courts in New Zealand were less rigid in their application of the common knowledge rule than the English courts.

83 In the case of *R v Martin*[53] the New Zealand High Court expressly stated that the test used to decide whether expert evidence should be admitted was whether the "evidence will materially assist the jury".

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49 See s 55 of the Uniform Evidence Acts (Aust).

50 *R v B (an accused)* [1987] 1 NZLR 362.

51 *R v Decha-Iamsakun* [1993] 1 NZLR 141 (CA), *R v Hohana* (1993) 10 CRNZ 92.

52 Evidence Act 2006 Commencement Order 2007 (2007/190) (NZ).

53 [2004] 3 NZLR 69.

84 In *Martin*, the accused was charged with the attempted murder of her terminally ill mother. To prove its case, the prosecution relied on a book advocating euthanasia written by the defendant in which she recorded that she had killed her mother. The defence alleged that the defendant had been in a state of "cognitive dissonance" when she wrote her book which led to her recollection being distorted. The expert expressed the view that the defendant had probably rationalised a conflicting situation in her mind and convinced herself that she had taken steps with the intention of ending her mother's life, when in fact she had not.

85 Evidence of how one's memory may be distorted appears analogous to evidence as to how one's memory operates, which is an area traditionally held not to be amenable to expert evidence. However, in *Martin* Wild J stated that he was not convinced that the concept of "cognitive dissonance" which involved this conflict-resolving process was part of everyone's knowledge and experience. In any event he was of the view that the expert evidence would materially assist the jury and therefore admitted it.

86 Thus, the position in New Zealand can be characterised as an exclusionary rule, but one that is applied with a more narrow scope than in England.

87 With effect from 1 August 2007, the common knowledge rule has been abolished legislatively in New Zealand by section 25(2)(b) of the Evidence Act 2006 which provides as follows:

> An opinion by an expert is not inadmissible simply because it is about … a matter of common knowledge.

G. Position in Singapore

88 We now turn to the common knowledge rule in Singapore to see if legislative reform is necessary.

89 Under the Evidence Act there is no general rule which excludes opinion evidence and which is equivalent to section 76 of the Uniform Acts. Such an exclusionary rule is unnecessary under the inclusionary approach of the Evidence Act which admits only those opinions that are deemed "relevant" by the Act.

90 Sections 47 to 53 of the Evidence Act entitled "Opinions of Third Persons when Relevant" set out exhaustively all the inclusionary rules relating to the reception of opinion evidence in the Singapore courts.

91 The inference that can be drawn from a textual approach to section 47[54] is that the common knowledge rule does form part of the law in Singapore. Section 47 admits only opinions on areas of *specialised knowledge* such as "foreign law, science or art, handwriting or finger impressions". The common knowledge rule is effectively no more than the converse of section 47. If only opinions on those specified specialised areas are relevant then *a fortiori*, opinions on matters of common knowledge and experience are not relevant and therefore not admissible in Singapore.

92 *Sarkar on Evidence*,[55] in his commentary on section 45 of the Indian Evidence Act (in *pari materia* with our section 47) quotes the following extract from an old American case as comprehensively and accurately stating the rule governing when expert testimony is admissible.

> The opinion of witnesses possessing peculiar skill is admissible whenever the subject-matter of inquiry is such, that inexperienced persons are not likely to prove capable of forming a correct judgment upon it, without such assistance; in other words, when it so far partakes of the nature of science, as to require a course of previous habit or study in order to the attainment of a knowledge of it, and that the opinions of witnesses cannot be received when the inquiry is into a subject-matter, the nature of which is not as to require any particular habits of study in order to qualify a man to understand it. If the relations of facts and their probable results can be determined without especial skill or study, the facts themselves must be given in evidence, and the conclusions or inferences must be drawn by the jury.

93 In Singapore, the courts have generally adopted the strict *Turner* approach to the common knowledge rule. In the Court of Appeal case of *Chou Kooi Pang & Anor v PP*,[56] the first appellant was charged with drug trafficking. He called an expert to support his defence that he was a person of borderline intelligence and an innocent courier. The defence expert stated that the first appellant had an IQ of 79 and was predisposed to be "simple minded, naive of people's motives, and shallow in critical thinking".

94 Yong Pung How CJ held that the trial judge was right to reject the expert evidence. He cited *Turner*, stating that it is well-established that expert opinion is admissible only to furnish the court with scientific information which is likely to be outside the experience and knowledge of a judge. The Chief Justice also cited *Masih* where the court expressed the view that in the case of an IQ which, though low, was within the range of normality as understood by psychologists, the admission of expert evidence was not justified.

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54 See para 7 above.

55 (16th Ed, 2007).

56 [1998] 3 SLR 593.

95 Yong CJ concluded that on the facts, the question whether the first appellant suspected he was carrying drugs was a matter entirely within the trial judge's purview. Reiterating one of the main justifications for the common knowledge rule, he stated: "A chief and justified concern of the courts is that the fact-finding process should not be surrendered to professionals such as psychiatrists, but should remain the province of the courts".

96 The courts in Singapore do not therefore appear to subscribe to the more flexible approach to the common knowledge rule adopted in Australia and New Zealand. The normal/abnormal dichotomy clearly forms part of our law in criminal cases. Expert evidence in these cases is received only when it is *necessary* for the judge to understand *abnormality* rather than when it may be of *assistance* to the judge by enhancing his understanding of *any subject matter* whether or not it amounts to abnormality.

97 Having said that, however, the Singapore courts have shown a remarkable latitude in the reception of motor vehicle accident reconstruction evidence which, arguably, is also excluded by a rigid application of the common knowledge rule.[57] In *Khoo Bee Keong v Ang Chun Hong*,[58] Andrew Phang JC (as he then was) acknowledged the value of scientific methods used in motor accident reconstruction when realistically applied to the proven facts of the case. He quoted approvingly an article by the authors Bates & Bates that stated:

> A well-trained accident reconstructionist can provide the scientific input – the determination of the physical factors that clearly define the collision, the cause of injuries to human beings, and all the physical factors involved that possibly led to the accident.[59]

98 Andrew Phang JC did however qualify his approval of such evidence by saying that, "one must of course be careful not to allow such techniques to overwhelm the very valuable (and I may add paradoxically inexpensive) resources of plain intellect, logic and common sense". His Honour did not however expressly advert to the *Turner* case nor to the common knowledge rule.

99 Motor accident reconstruction evidence is routinely received in Singapore courts[60] even in criminal cases[61] without consideration of the common knowledge rule. This suggests an inconsistent application of the rule in Singapore.

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57 *Clark v Ryan* (1960) 103 CLR 486.

58 [2005] SGHC 128.

59 Julie E Bates & John T Bates, "Accident Reconstruction" (1988) 55 Defense Counsel Journal 437.

60 *Ong Soh Eng @ Cheng Soh Eng v Soo Siew Choon @ Sootho Siew* [1999] SGHC 49.

61 *Public Prosecutor v Julia Elizabeth Tubbs* [2001] SGHC 214.

H. Recommendations for reform

100 Having reviewed the law on this issue, it is our view that the common knowledge rule should be expressly abolished in Singapore for the following reasons:

(a) Inconsistency – In some areas the rule is applied rigidly by our courts whereas in other areas within its scope, it is not invoked at all. The existence of the rule does not operate to exclude the use of expert motor vehicle accident reconstruction evidence in Singapore and therefore the potential increase in the cost and time of trial as a result of abolishing the rule is not an argument in favour of preserving the rule.

(b) Arbitrary distinctions – As pointed out in *Murphy*, the normal/abnormal dichotomy is completely arbitrary and unrealistic. Even if "normal" can be said to have a definite core meaning, the behaviour of "normal" human beings is not always transparent and is not always easily evaluated by lay persons.

(c) Counter-intuitive human behaviour – There are many areas of human behaviour in which ordinary people's understanding or knowledge is misconceived or out of date and where the guidance of an expert is extremely valuable for example, in cases involving child abuse or the battered women's syndrome.

(d) Lack of justification – In Singapore there is no need to protect a jury from powerful and confusing expert opinions. Professional judges are perfectly capable of comprehending the subtleties of expert evidence and according the proper weight to such evidence. In this context, there is no need for the perpetuation of the common knowledge rule as an exclusionary rule.[62]

(e) Experts more independent – Bearing in mind the comparatively low volume of trials in Singapore in general, and the even lower volume of trials requiring expert evidence, there is little risk of a "professional expert witness" class emerging as is the fear some other jurisdictions. Our experts have far less of an incentive to put themselves out "for hire" and should therefore be viewed with less suspicion. Our laws on expert opinions can afford to be less exclusionary.

(f) Reversibility of judicial error – Judges unlike juries have to give reasons for their decisions. If the judge surrenders his decision-making

62 Lirieka Meintjes-Van der Walt, "Ruling on Expert Evidence in South Africa: A Comparative Analysis" (2001) EvPro 5(226).

responsibility to the expert or is unduly influenced by the expert opinion, these errors will be evident from his judgment and can be scrutinised and if necessary corrected on appeal.

(g) Lack of the relevance/admissibility distinction – In jurisdictions with a law of evidence based on free admissibility with exclusionary rules, like England and New Zealand, even if the common knowledge rule is not expressly abolished by statute, a more flexible common knowledge rule that excludes only evidence that will not be of assistance to the tribunal of fact is sufficient to achieve the desired goal. If the evidence is helpful, it is logically relevant and will be admitted. The judge is then free to evaluate the expert evidence together with all other evidence at his disposal before coming to his ultimate decision.

101 We therefore propose the express abolition of the common knowledge rule by the proposed section 43(3) of the Evidence Act, modeled on section 25(2)(b) of the New Zealand Evidence Act 2006. The express abolition of the common knowledge rule must however be accompanied by discretionary powers along the lines of section 135 of the Uniform Acts that enables the judge to exclude expert evidence that is unfairly prejudicial or evidence that will result in an undue waste of the court's time. These provisions will serve as an adequate safeguard to prevent the proliferation of unnecessary and unhelpful expert evidence.

IV. The Field of Expertise Rule

A. The rule

102 Having determined whether a particular issue is one on which the tribunal of fact ought to be assisted by the opinion of an expert, the next logical question is whether the field of expertise on which that opinion draws is one worthy of recognition by the law of evidence.

103 At this stage of the inquiry, the question is "whether the subject matter of the opinion forms part of a body of knowledge or experience which is sufficiently organised or recognised to be accepted as a reliable body of knowledge or experience,[63] a special acquaintance with which of the witness would render his opinion of assistance to the court".[64]

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63 *Osland v The Queen* (1998) 197 CLR 316 at 336 (*per* Gaudron and Gummow JJ); see also *Clark v Ryan* (1960) 103 CLR 486 at 501 (*per* Menzies J) and at 508 (*per* Windeyer J).

64 *R v Bonython* [1984] SASR 45 at 46.

104 Another way of putting it is that the expert's claimed knowledge or expertise should be "of the nature of a science as to require a course of previous habit, or study, in order to the attainment of a knowledge of it".[65]

105 As Freckelton explains, this rule serves as a prophylaxis "to preclude evidence that relates to fringe or spurious techniques or theories that are not accepted within the relevant expert community, or are inherently unreliable".[66] Thus, this rule is the main threshold exclusionary rule that serves to exclude classes of expert evidence which the law deems insufficiently reliable to be received as an aid to forensic decision-making.

B. Position in the United States

106 The most extensive discourse on how a court determines which "branches of knowledge" should be accorded evidentiary recognition is found in the United States where inventive counsel put continual pressure on the courts to admit opinions derived from the application of emerging fields of knowledge.

107 Until 1992, the principles applicable in the United States federal jurisdiction were those set out in the judgment of the United States Court of Appeals for the District of Columbia in *Frye v US*.[67] The particular evidence under consideration in *Frye* was opinion evidence as to truth-telling based on a predecessor of the polygraph which the Court described in that case as the "systolic blood pressure deception test".

108 In a landmark passage, the Court laid down the test that was to determine exclusively for 70 years when novel scientific evidence would become eligible for reception in a federal court of law:

> Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognised, and while courts will go a long way in admitting expert testimony deduced from a well-recognised scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained *general acceptance* in the particular field in which it belongs. [emphasis added]

The *Frye* test is therefore referred to as the "general acceptance test".

109 In 1975, 52 years after *Frye*, the Federal Rules of Evidence came into force governing the reception of evidence in the Federal Courts. Rule 702, which governs the reception of expert evidence, provided as follows:

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65 *Clark v Ryan* (1960) 103 CLR 486 at 491 (*per* Dixon CJ).

66 Ian Freckelton, "Expert Evidence and the Role of the Jury" (1994) ABR LEXIS 15.

67 (1923) 293 F1013.

Rule 702. Testimony by Experts

> If scientific, technical or other *specialised knowledge will assist* the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion or otherwise. [emphasis added]

110 In *Daubert v Merrell Dow Pharmaceuticals Inc*[68] in 1992 the United States Supreme Court held that the *Frye* test could no longer stand in light of the permissive legislative intent behind the Federal Rules of Evidence. According to the Supreme Court in *Daubert*, the rigid "general acceptance test" propounded in *Frye* was in conflict with the Federal Rules of Evidence which put the focus on whether the evidence had a sound scientific foundation and whether it would assist a tribunal of fact to understand the evidence or to determine a fact in issue.

111 The Court in *Daubert* therefore held that the Federal Rules had established *reliability* and *relevance* as the only two criteria to determine if expert evidence should be admitted and left no room for "general acceptance" as a threshold question.

112 The Court interpreted the phrase "scientific knowledge" in Rule 702 as requiring the evidence to satisfy the prerequisite of evidentiary reliability and as importing the requirement that the evidence be supported by appropriate validation by the methods and procedures used in science. The Court emphasised that the focus of the inquiry into reliability should be on the principles adduced and methodology utilised not on the actual conclusions reached by the expert.

113 The Court said:[69]

> In order to qualify as 'scientific knowledge', an inference must be derived by the scientific method. Proposed testimony must be supported by appropriate validation – *ie*, 'good grounds', based on what is known. In short, the requirement that an expert's testimony pertain to 'scientific knowledge' establishes a standard of evidentiary reliability.

114 The word "assist" in Rule 702 was said to create a "helpfulness" standard which goes primarily to the requirement of relevance. "Rule 702's 'helpfulness' standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility".[70] This test goes beyond mere logical relevance required by Rule 401 of the Federal Rules of Evidence.[71] Scientific evidence is required to pass a heightened relevancy test because the Supreme Court was of the view that even if evidence is

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68 (1992) 113 S Ct 2786.

69 (1992) 113 S Ct 2786 at 2795.

70 (1992) 113 S Ct 2786 at 2796.

71 Mirrored in s 55(1) of the Uniform Evidence Acts.

shown to be scientifically valid, it must also be shown to be scientifically relevant, or "fit", for the purpose for which it is adduced.[72] It must be established that the expert's reasoning or methodology, even if scientifically valid, is scientifically probative of the particular fact or facts to which it is directed

115 The Supreme Court then went on to suggest some non-definitive guidelines to determine reliability of scientific knowledge. The four non exhaustive guidelines suggested were:[73]

(a) Whether the claims can and have been tested (falsified);[74]

(b) Whether the theory or technique has been subjected to peer review and publication;[75]

(c) The "known or potential rate of error" and the "existence and maintenance of standards controlling the technique's operation";[76] and

(d) Whether there has been "general acceptance" within a relevant scientific community.[77]

116 Having set out the new guidelines, the Supreme Court concluded by holding that even if evidence is admitted under the new guidelines, Rule 403 of the Federal Rules of Evidence will act as a safeguard to exclude the relevant evidence "if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury".[78]

117 As a result of *Daubert*, general acceptance by a relevant scientific community has now been relegated to being merely one factor in a non-exhaustive list of factors to be taken into account in determining admissibility. It is no longer the sole and exclusive

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72 The example given was that scientific knowledge about the phases of the moon would be highly relevant to the question whether a certain night was dark but would be irrelevant to the question of whether a certain individual behaved irrationally on a particular night, absent evidence establishing the necessary causal link.

73 Gary Edmond & David Mercer, "Keeping 'Junk' History, Philosophy and Sociology of Science out of the Courtroom: Problems with the Reception of *Daubert v Merrell Dow Pharmaceuticals, Inc*" (1997) 20 University of New South Wales Law Journal at 48-100.

74 (1992) 113 S Ct 2786 at 2796.

75 (1992) 113 S Ct 2786 at 2797.

76 (1992) 113 S Ct 2786 at 2797.

77 (1992) 113 S Ct 2786 at 2797.

78 (1992) 113 S Ct 2786 at 2798.

criterion as it was under *Frye*. The gate-keeping responsibility has been shifted from the scientific community to the judge.

118 The *Frye* approach has the following advantages:

(a) It sidesteps the task of judicial assessment of scientific validity by deferring to the general opinion of the relevant expert community.[79]

(b) It is a relatively quick method of determining admissibility of novel scientific evidence. Trials are not prolonged and juridical resources are conserved by not having to deal with complicated threshold questions.[80]

(c) The high threshold requirement of establishing "general acceptance" provides a greater assurance of reliability for the evidence.[81]

(d) The test is relatively brightline and promotes consistency of decision-making.[82]

119 The *Frye* approach, however, has certain disadvantages:

(a) The *Frye* test applies only to *novel* scientific evidence whereas *Daubert* provides assistance in evaluating the admissibility of *all* scientific evidence. The application of the *Frye* test therefore means that a field of scientific expertise, once it has been recognised and is no longer considered novel, ceases to be subject to ongoing scrutiny. The *Frye* test therefore fails to recognise that what may have been reliable science at one time may cease to be so.

(b) "Acceptance in the scientific community is a nebulous concept".[83] It is difficult to determine what should constitute the relevant community.[84]

(c) It is difficult to ascertain the views of a completely unbiased and impartial majority of practitioners in a particular field whose financial

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79 See note 33, paragraph 50 above.

80 "Novel Scientific Evidence and Judicial Gatekeeping: *R v Calder* and *Daubert v Merrell Dow Pharmaceuticals* Compared" (1998) VUWLRev.

81 See *Daubert v Merrell Dow Pharmaceuticals Inc* (1992) 113 S Ct 2786 at 2798.

82 See *Daubert v Merrell Dow Pharmaceuticals Inc* (1992) 113 S Ct 2786 at 2798.

83 See *State v Hall* 297 NW 2d 80,84-5(1980).

84 See *R v Dudley* [2004] EWCA Crim 3336.

viability is not intimately connected to the technique or theory in question.[85]

(d) The *Frye* test makes no attempt to evaluate the contents or methods used in the scientific knowledge adduced and merely focuses on which methods have been accepted and recognised by the majority of the profession ("extrinsic evaluation").[86] The absence of an empirical testing requirement may result in the reception of unreliable evidence.

(e) Reliable and helpful scientific methodologies or techniques may be excluded merely because they are too recent or because they only represent the views of a minority in the field.[87]

120 Advantages of the *Daubert* approach:

(a) The *Daubert* test goes directly to "the nub of the issue to determine whether as a matter of fact a technique or theory" has sufficiently evidentiary reliability to be received in court by evaluating the content and methods used in the scientific knowledge adduced[88] ("internal inspection").

(b) The *Daubert* test permits more relevant and reliable expert evidence to go before the court.

(c) Opinion evidence resulting from the application of a field of expertise will not be excluded merely because that field is new and cannot yet be said to be "generally accepted".

121 Disadvantages of the *Daubert* approach:

(a) It places too great an onus on judges who are expected to act as amateur scientists in evaluating the underlying essence of scientific knowledge and to apply difficult epistemological concepts such as falsifiability to decide what are merely threshold questions.[89]

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85 See *R v Dudley* [2004] EWCA Crim 3336.

86 See *Daubert v Merrell Dow Pharmaceuticals Inc* (1992) 113 S Ct 2786 at 2797.

87 New Zealand Law Commission, *Evidence Law: Expert Evidence and Opinion Evidence* (Preliminary Paper No 18, Wellington, 1991).

88 See *R v Dudley* [2004] EWCA Crim 3336.

89 See *Daubert v Merrell Dow Pharmaceuticals Inc* (1992) 113 S Ct 2786 at 2797.

(b) Judges will require special training to cope with the task of assessing scientific methodologies.

(c) More judicial time will be consumed in applying the test and will in turn result in more costs to the parties.

(d) The concept of falsifiability, which is the key test of scientific validity propounded in *Daubert*, is an adequate, but not always necessary, criterion to distinguish between "good" and "junk" science. Although a rigid application of this criterion may rightly exclude some unreliable types of syndrome evidence, it may also result in the exclusion of orthodox forensic practices that cannot meet falsifiability criteria for example fingerprints, ballistics, bite-marks and handwriting.[90]

(e) It is biased in favour of "hard sciences". Syndrome evidence[91] is usually adduced by experts in social and behavioural sciences and cannot be tested or falsified in the strict sense because these "soft" sciences deal with the psychology of human beings.

(f) The guideline of falsification by empirical testing or rate of error was formulated specifically to test scientific evidence and is not appropriate for evaluating other forms of specialised knowledge.[92]

(g) The test is very general in nature and the non-exhaustive factors set out do not give the courts much guidance in its application.

122 The subsequent Supreme Court case of *Kumho Tire Company Ltd v Carmichael*[93] addressed and clarified some of the uncertainties arising from the *Daubert* decision. *Kumho* involved the testimony of an expert on tire failure analysis and established that the general gatekeeping responsibility imposed by *Daubert* applies not only to scientific testimony but also to technical and other specialised knowledge.

123 *Kumho* also reiterates that the *Daubert* factors are merely helpful and not definitive. The court retains a broad discretion as to the specific factors it uses to determine reliability in each case. It is at liberty to use any factors that are reasonable measures by which to determine the reliability of a particular field of expertise. On this basis, the criticism leveled at *Daubert* relating to the inadequacy of the falsifiability

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90 J Siegel, "*Daubert* and its Consequences", presented to the Australian and New Zealand Forensic Science Society, 25 May 1996.

91 For example, child sexual abuse accommodation syndrome and rape trauma syndrome.

92 Law Commission of New Zealand, *Evidence Code and Commentary* (Report 55, Vol 2, 1999).

93 526 US 137, 119 S Ct 1167 (1999).

factor in judging all disciplines does not carry much weight. If the falsifiability criterion is inappropriate to determine reliability in disciplines such as social sciences, *Kumho* is now authority for not taking falsifiability into account as a key factor.

124 As a result of *Daubert* and *Kumho*, Rule 702 of the Federal Rules of Evidence has been amended as follows:

> **Rule 702. Testimony by experts**
>
> If scientific, technical, or other specialised knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

125 The new conditions inserted into Rule 702 now expressly lay down reliability and suitability of methodology as preconditions of admissibility of expert testimony.

C. Position in Australia – common law

126 In Australia, there has been no clear pronouncement on what test is to be applied to determine the admissibility of novel scientific evidence. Some authorities appear to have adopted the *Frye* approach while others have been more persuaded by the *Daubert* approach.

127 In the "battered woman syndrome" case of *R v Runjanjic and Kontinnen*[94] King CJ looked more closely at this question and held that:

> An essential prerequisite to the admission of expert evidence as to the battered woman syndrome is that it be accepted by experts competent in the field of psychology or psychiatry as a scientifically established facet of psychology.

128 This is a clear endorsement of the *Frye* approach, relying as it does on "general acceptance".

129 In the New South Wales case of *R v Pantoja*,[95] Hunt CJ considered the admissibility of DNA evidence and endorsed the previous decision in *R v Gilmore* that was expressly based on *Frye*. His Honour said the principle enunciated in *Frye* as adopted in *Gilmore* should continue to be applied in New South Wales because *Frye*

94 (1991) 53 A Crim R 362.

95 (1996) 88 A Crim R 554.

was reversed in the United States solely because of supervening legislation in the shape of the Federal Rules of Evidence. The NSW court took the view that the true effect of *Daubert* was to offer authoritative guidance on the interpretation of the Federal Rules of Evidence and not to abolish the common law rule as expressed in *Frye*.

130 Section 79 of the Uniform Acts reads as follows:

> If a person has specialised knowledge based on the person's training, study or experience, the opinion rule does not apply to evidence of an opinion of that person that is wholly or substantially based on that knowledge.

131 Section 79 of the Uniform Acts does not have any express requirement or test to establish what qualifies as an accepted field of expertise. It merely requires the demonstration of an area of "specialised knowledge". The Australian courts therefore still look to the common law for guidance on this issue.

132 Whether or not the wording of section 79 of the Uniform Acts had altered the common law approach to establishing a 'field of expertise' was specifically raised in the High Court case of *HG v The Queen*.[96] This case involved psychological evidence on the behavioural patterns of children who have been victims of trauma. Gaudron J stated that the words "specialised knowledge" in section 79 did not give rise to a test that was narrower or more restrictive than the common law test set out in *R v Bonython*.[97] Her Honour stated that the position at common law was that, if relevant, expert or opinion evidence is admissible if it is sufficiently organised or recognised to be accepted as a reliable body of knowledge or experience.

133 The High Court here appears to have laid down its own hybrid test based on both general acceptance and reliability, and therefore differing from both *Frye* and *Daubert* in material respects. Gleeson CJ stated there was no need to enter into the issues considered in *Daubert* because the High Court was concerned only with the language of section 79.

134 In the more recent decision of the Supreme Court of Western Australia in *Mallard v The Queen*,[98] the Court was faced with an attempt to admit polygraph evidence as expert evidence. Having surveyed and reviewed the authorities from the United States, Canada and Australia the Court concluded that:

> … it has not been shown that the polygraph technique is a reliable method for determining truth or untruth and nor is there the degree of acceptance within the relevant scientific community which would indicate that it is seen as being

96 [1999] 197 CLR 414.

97 (1984) 38 SASR 45.

98 [2003] WASCA 296.

> so. That being the case the evidence of the polygraph examination would not have assisted the trier of fact (the jury).

135 The Court evidently adopted an approach closer to *Daubert* to determine admissibility. The main criterion was the reliability of the scientific methodology out of which the evidence proffered had emerged and acceptance by the relevant scientific community was relegated to a subsidiary role of being merely one factor.

136 In rejecting the evidence, the Court took into account the fact that the control question technique used in polygraph examination had not been sufficiently recognised by prestigious academic or scientific journals. The Court further found that the technique lacked underlying scientific theory which meant it could not be adequately falsified or verified by repetition or replication in any scientific sense.

137 As advocated by *Daubert*, the Court embarked on a detailed analysis of polygraph evidence based on the competing expert testimony adduced before coming to its own conclusion on whether the evidence in question was scientifically valid and sufficiently reliable to assist the trier of fact.

D. Position in Australia – Australian Law Reform Commission's proposals

138 In its earlier reports, the Australian Law Reform Commission had rejected any test along the lines of the *Frye* "general acceptance test" stating that such a test would be too strict and would exclude much useful and reliable evidence.[99] The Commission also felt that such a test would result in the courts lagging "behind the advances of science while they wait for novel scientific techniques to win general acceptance".[100]

139 In Australian Law Reform Commission Report 102, the need (if any) clearly to stipulate the test to be applied in section 79 was considered. Having acknowledged that the common law test on what suffices as a field of expertise in Australia had not been clearly settled the Australian Law Reform Commission concluded as follows:

> (a) Section 79 does not enact a test based on "general acceptance" or similar requirements;
>
> (b) The concerns that the flexibility of section 79 may result in the inclusion of potentially misleading or time-wasting evidence are best addressed through the exercise of the section 135 and section 136 discretions to exclude otherwise admissible evidence. These discretions "could be

99 The Australian Law Reform Commission, *Uniform Evidence Law* (ALRC Report 102, 2005) at para 9.38.

100 The Australian Law Reform Commission, *Evidence (Interim)* (ALRC Report 26, 1984) at para 356.

used to exclude evidence that has not sufficiently emerged from the experimental to the demonstrable";[101]

(c) Adding new criteria to section 79 would not simplify the challenging task that will always face the courts in respect of evaluating new and developing areas of knowledge. In fact it may create more uncertainties.

(d) It was unnecessary to amend section 79 to import any particular test or to clarify any aspects of the "specialised knowledge" requirement.

140 The Australian Law Reform Commission opted for flexibility and left the ultimate mode of evaluation to the courts. They concurred with the view of Odgers that in Australia, as the decision of *HG v The Queen* shows, the ultimate test applied by the courts is "reliability" of the expert's knowledge or experience in the area.[102]

E. Position in New Zealand

141 The issue of reception of novel scientific evidence arose in New Zealand in the case attempted murder by poisoning case of *R v Calder*.[103] Here the court was asked to rule on the admissibility of the results of a scientific technique that analysed hair for traces of a chemical. In this particular case, that method had been used and had found the byproduct of the poison alleged to have been used by the accused in murdering the victim. In coming to his decision, Tipping J was guided by *Daubert* and New Zealand law reform proposals since there was no direct authority on this issue in New Zealand.

142 Having commented on *Daubert*, Tipping J commented on the Law Commission's discussion paper on expert evidence which had concluded that to be admissible, "a theory need not be accepted by all or most scientists working in the relevant area".[104] The New Zealand Law Commission was of the view that "idiosyncratic and unsatisfactory theories must be guarded against" but "theories which were newly developed or which represented the views of a minority might still be reliable and helpful".[105]

143 Tipping J declined to apply a "general acceptance test". He then laid down his own prerequisites for admissibility which were that the evidence must be shown to be

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101 The Australian Law Reform Commission, *Evidence (Interim)* (ALRC Report 26, 1984) at para 743.

102 S Odgers, *Uniform Evidence Law* (6th Ed, 2004).

103 Unreported, 12 April 1995, High Court, Christchurch Registry, T 154/94.

104 New Zealand Law Commission, *Evidence Law: Expert Evidence and Opinion Evidence* (Preliminary Paper No 18, Wellington, 1991).

105 Karen Belt, "Novel Scientific Evidence and Judicial Gatekeeping: *R v Calder* and *Daubert v Merrell Dow Pharmaceuticals Compared*" (1998) Victoria University of Wellington Law Review 14.

both relevant and helpful. In order to be relevant, it is only the test of ordinary logical relevance that applies and not the heightened test of "relevance" required by *Daubert*. In order to be helpful, the evidence must be shown to be sufficiently reliable.

144 Tipping J justified his general test requiring "a sufficient claim to reliability" by saying it was flexible and could be applied to different types of novel scientific evidence. The test, he said, could be supplemented by appropriate factors drawn from case law.[106]

145 The *Calder* test is much more flexible than *Daubert* (prior to its clarification by *Kumho*) because the test requires the judge to apply any factors derived from case law that he thinks are appropriate to test reliability. This is wide enough to include policy factors. The *Calder* test does not emphasise falsifiability as a key factor and therefore is more suitable for application in cases involving "soft" sciences or other types of specialised knowledge.

146 The New Zealand Evidence Act 2006 does not enact either the *Daubert* or the *Frye* test or the Australian hybrid test, leaving the issue instead to be developed at common law on a case by case basis.

F. Position in England

147 In England, there was until recently no explicit consideration of the prerequisites for the recognition of a novel field of science for evidential purposes. There are indications in the case law[107] that the *Frye* test represents English law, but without analysis of the English precedents or of *Daubert*. There are contradictory indications in the English case law[108] that the categories of expert evidence are not closed and that lack of general acceptance is not *ipso facto* a bar to admissibility of expert evidence in novel fields.

148 The consensus though is that novel expert evidence may be admitted at common law if it is "sufficiently well-established to pass the ordinary tests of relevance and reliability".[109] It is then left to the tribunal of fact to evaluate the probative value of the evidence and the weight to be attached to it based on factors similar to those discussed in *Daubert* in the light of cross-examination and the opponent's expert evidence.

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106 Karen Belt, "Novel Scientific Evidence and Judicial Gatekeeping: *R v Calder* and *Daubert v Merrell Dow Pharmaceuticals* Compared" [1998] Victoria University of Wellington Law Review 14.

107 *R v Gilfoyle (No 2)* [2001] 2 Cr App R 5 (57).

108 *R v Robb* [2001] 2 Cr App R 5 (57); *Clarke* [1995] 2 Cr App R 425.

109 *R v Dallagher* [2002] EWCA Crim 1903 at para 29; *Luttrell* [2004] EWCA Crim 1344 at para 37.

149 This approach places a low barrier to admissibility and leaves questions of scientific rigour in the field in question as matters that go to weight. Thus, in the facial mapping case of *R v Clarke*,[110] the court observed:

> We can see no other objection in legal principle to this category of evidence, but we say immediately, of course, that the probative value of such evidence depends on the reliability of the scientific technique (and that is a matter of fact) and is one fit for debate and/or exploration in evidence.

150 In the subsequent case of *R v Dallagher*,[111] involving identification by earprint evidence, Lord Justice Kennedy commented on *Frye's* demise in the United States and quoted with approval *Cross and Tapper* on the current English approach to new and emerging fields of knowledge:

> The better, and now more widely accepted, view is that so long as the field is sufficiently well-established to pass the ordinary tests of relevance and reliability, then no enhanced test of admissibility should be applied, but the weight of evidence should be established by the same adversarial forensic techniques applicable elsewhere.[112]

151 The Law Commission of England and Wales[113] expresses the very strong view that this *ad hoc* approach requires reform, at least in criminal cases, in the light of several miscarriages of justice caused by "flawed expert evidence".[114] As the Law Commission says, these miscarriages show that "expert evidence of doubtful reliability may be admitted too freely, be challenged too weakly by the opposing advocate and be accepted too readily by the jury at the end of the trial".[115]

152 The Law Commission has therefore invited consultation on a proposal that in England "there should be an explicit 'gate-keeping' role for the trial judge with a clearly-defined test for determining whether proffered expert evidence is sufficiently reliable (that is, sufficiently trustworthy) to be admitted".[116] This test would be applied

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110 [1995] 2 Cr App R 425.

111 [2002] EWCA 1903.

112 *Cross and Tapper on Evidence* (9th Ed) at p 523.

113 Law Commission of England and Wales, *The Admissibility of Expert Evidence in Criminal Proceedings in England and Wales: A New Approach to the Determination of Evidentiary Reliability* (Consultation Paper 109, 7 April 2009).

114 Law Commission of England and Wales, *The Admissibility of Expert Evidence in Criminal Proceedings in England and Wales: A New Approach to the Determination of Evidentiary Reliability* (Consultation Paper 109, 7 April 2009) at para 2.25.

115 Law Commission of England and Wales, *The Admissibility of Expert Evidence in Criminal Proceedings in England and Wales: A New Approach to the Determination of Evidentiary Reliability* (Consultation Paper 109, 7 April 2009) at para 2.27.

116 Law Commission of England and Wales, *The Admissibility of Expert Evidence in Criminal Proceedings in England and Wales: A New Approach to the Determination of Evidentiary Reliability* (Consultation Paper 109, 7 April 2009) at para 6.4.

after the test of relevance and substantial assistance but before any exclusionary discretion was considered.[117]

153 The Law Commission's proposal, therefore, is the following legislative test of admissibility:

(a) The opinion evidence of an expert witness is admissible only if the court is satisfied that it is sufficiently reliable to be admitted.

(b) The opinion evidence of an expert witness is sufficiently reliable to be admitted if:

(i) the evidence is predicated on sound principles, techniques and assumptions;

(ii) those principles, techniques and assumptions have been properly applied to the facts of the case; and

(iii) the evidence is supported by those principles, techniques and assumptions as applied to the facts of the case.

(c) It is for the party wishing to rely on the opinion evidence of an expert witness to show that it is sufficiently reliable to be admitted.

G. Position in Singapore

154 Our section 47 like section 79 of the Uniform Acts does not stipulate any "field of expertise" test.

155 Authorities in Singapore on how scientific evidence is evaluated by the courts are relatively rare. In *Nadasan Chandra Secharan v Public Prosecutor*,[118] a case involving the DNA analysis of a tooth fragment, Yong Pung How CJ said:

> On the totality of the expert evidence adduced, we are not satisfied that the prosecution had proved adequately that the tooth fragment originated from the deceased. We do not doubt the immense value of DNA evidence and its use in criminal trials. However, every failure of the procedure stated in the validation paper would, in our view, affect the weight to be attributed to the expert

117 Law Commission of England and Wales, *The Admissibility of Expert Evidence in Criminal Proceedings in England and Wales: A New Approach to the Determination of Evidentiary Reliability* (Consultation Paper 109, 7 April 2009) at paras 6.5–6.6.

118 [1997] 1 SLR 723.

> evidence unless there were other independent sources to verify and confirm that such departures did not affect the reliability of the findings.

156 Also in *PP v Tay Wee Guan*[119] Rajendran J said:

> DNA evidence is indeed a very useful tool in the prosecution's armoury. It is, however, a relatively new and esoteric science and every effort should be taken to have a clear understanding of its implications and limitations before reliance is placed on it. Having decided to call such evidence, it is important that the prosecution, from the very outset of the trial, acquaint the defence and the court, in clear, unambiguous language, the details of the DNA evidence and spell out in what way the evidence is going to help in establishing the charge(s) against the accused. Failure to do so can lead to ambiguity and confusion and may result in injustice.

157 Both these passages could be read as indicating that the approach in Singapore to expert evidence from novel fields of science would be more akin to that adopted at common law in England. *Daubert* and *Calder* impose a relatively high barrier to admissibility, requiring the court to assess in some detail the reliability of the field of expertise before the evidence is admitted. The Singapore approach, like the English approach, appears to involve a low barrier to admissibility. It is only to determine the weight to be attached to the evidence, and not admissibility, that the court embarks on an evaluation of the underlying methods used and the degree to which the particular technique was properly tested for accuracy.

H. Recommendations for reform

158 We recommend that the best model for reform of our section 47 is along the lines of section 79 of the Uniform Acts and section 25(1) of the New Zealand Evidence Act 2006.

159 In our view, the phrase "specialised knowledge" used in both these models for reform is preferable to the anachronistic wording of section 47. Section 47 specifies five areas in which expert evidence is admissible, *ie* foreign law, science, art, handwriting and finger impressions.

160 Although the phrase "science or art" has been widely construed in the equivalent Indian provision to include all subjects in which peculiar skill and judgment or experience or special study is necessary,[120] it would be better to incorporate a general phrase such as "specialised knowledge" to avoid any argument that the fields of expertise on which expert evidence is admissible are closed. Such a narrow reading of

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119 [1997] SGHC 133.

120 Sarkar, *Law of Evidence* (16th Ed, 2007).

section 47 would "deny to the law of evidence the advantages to be gained from new techniques and new advances in science".[121]

161 In India, the Law Commission chose to recommend that their equivalent of section 47 be amended to include the additional words "footprints or, palm impressions or, typewriting or, usage of trade or, technical terms or identity of persons or animals".[122] We do not feel that enumerating additional specific categories of expertise on a piecemeal basis, as proposed in India, is the way forward for reform of our provision.[123] It is impossible to foresee and provide for all the possible areas in which expert evidence may be useful in the future. Accordingly the use of a broad and flexible phrase like "specialised knowledge" is preferable.

162 Based on *Daubert*, it can be argued that the use of the word "knowledge" in the amended section 47, as in Rule 702, impliedly imposes a reliability test on the field of expertise. Alternatively, conditions similar to those found in the amended Rule 702 can be inserted in the amended section 47 expressly to enact the reliability requirement.

163 On balance, it is our view that the factors to be applied when deciding reliability should not be set out in legislation. That would not allow the courts the necessary latitude to determine the reliability of the various fields of expertise, novel and established, that may come before them.

164 With these amendments, the old common knowledge and field of expertise rules will be subsumed under the new "helpfulness" test, to adopt the language of *Daubert*.

165 It will then be left to our courts to decide whether they wish to observe the *Daubert/Calder* guidelines at the admissibility stage or let in all apparently reliable and useful evidence and evaluate the evidence in depth according to the *Daubert/Calder* principles only when determining the weight to be attached to that evidence. Either approach is equally acceptable since in Singapore the judge is the sole tribunal of fact and the law need not strain to shield a jury from potentially unreliable expert evidence.

166 This distinguishing feature also means that we do not, in Singapore, have the problem in England of miscarriages of justice arising from jury misapprehension of expert evidence. Given that, our model for reform does not adopt that now proposed in

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121 *R v Clarke* [1995] 2 Cr App R 245.

122 Law Commission of India, 185th Report, March 2003.

123 The danger of this approach is illustrated by the case of *Hanumant v The State of Madhya Pradesh* (AIR 1952 SC 343) in which the Indian Supreme Court excluded expert evidence matching the typewriting in a particular document to a particular typewriter because such evidence was held not to fall within the ambit of s 45 of the Indian Evidence Act. The Malaysian courts have declined to follow *Hanumant* or to adopt this narrow approach: see the decision of Raja Azlan Shah J (as he then was) in *Chandrasekeran & Ors v PP* [1971] 1 MLJ 153. *Hanumant* was finally overruled in 1996 by a bench of five judges in *S J Choudhry* 1996 Cri LJ 1713.

England, at least in criminal cases, of spelling out in legislation the criteria by which expert evidence will be admitted.

167 The rigid and inflexible *Frye* approach has lost favour worldwide and is not tenable in Singapore.

168 A proper and effective application of the *Daubert/Calder* guidelines by judges in respect of scientific evidence will however require some resources to be spent on educating the judges on the basics of scientific method including the concept of falsifiability and the limitations of frequently used methods of observation, measurement and detection.

169 Alternatively, the courts should use more liberally the powers granted by Order 40 rule 1 of the Rules of Court to appoint a court expert to assist the court in determining even this threshold question of whether a particular novel field of expertise is one out of which any expert evidence is worthy of receipt.

170 As a safeguard, we recommend also that the court be equipped with an express statutory discretionary power along the lines of section 135 of the Uniform Acts or Rule 403 of the Federal Rules of Evidence to exclude expert evidence which is otherwise admissible if the court is of the view that the expert evidence would be unfairly prejudicial, would be misleading or confusing or would cause or result in an undue waste of time.

171 This provision would supplement any existing residual common law discretion to exclude evidence that is more prejudicial than probative. As such a discretion ought to be of general application rather than limited to expert evidence, we have not proposed that a new section be inserted to this effect dealing only with expert evidence.

172 Under the Uniform Acts, there is also a mandatory duty to exclude unfairly prejudicial evidence in criminal cases.[124] We do not recommend that that mandatory exclusionary rule be incorporated insofar as it may relate to expert evidence as it would be too restrictive and would not be consistent with the general tenor of the law of criminal evidence in Singapore.

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124 See s 137 of the Uniform Evidence Acts (Aust).

V. The Expertise Rule

A. The rule

173 Once it has been established that a particular witness' field of learning is one worthy of recognition for evidential purposes, the next logical question is whether the witness himself is an expert in that field.

174 To enjoy the privilege of being allowed to give opinion evidence to which the tribunal of fact will have regard, a witness must be shown to be someone with sufficient knowledge and experience in a particular field of recognised expertise to entitle him to be held out as an expert who can assist the court. The corollary of this is that an expert witness whose opinion based on a particular field is admitted is not permitted to stray outside that field and give opinion evidence on other areas.

175 Although in the past this rule was applied with a degree of laxity, the burgeoning of so called "experts" in a whole new spectrum of technologies has led to the courts becoming more vigilant in the application of this corollary of the expertise rule.[125]

B. Position in England and Australia – qualifications of expert

176 In England the old case of *R v Silverlock*[126] remains the leading authority on what is necessary to qualify as an expert. In this case Lord Russell of Killowen CJ stated:

> It is true that the witness who is called upon to give evidence founded on a comparison of handwriting must be *peritus* [expert]. He must be skilled in doing so; but we cannot say that he must have become *peritus* in the way of his business or in any definite way.

177 *Silverlock* is authority for the proposition that although the expert must be "skilled" by special study or experience, his knowledge need not have been acquired professionally.

178 In the more recent case of *R v Robb*,[127] Bingham LJ had to consider the admissibility of voice identification evidence. The test adopted was "whether study and experience will give a witness's opinion an authority which the opinion of one not so

125 See *R v Dudley* [2004] EWCA Crim 3336.

126 [1894] 2 QB 766 followed in *PP v Muhamed bin Sulaiman* [1982] 2 MLJ 320.

127 (1991) 93 Cr App R 161.

qualified will lack, and (if so) whether the witness in question is '*peritus*' in Lord Russell's sense".

179 An interesting question that sometimes arises when dealing with the competency of experts is the status of *ad hoc* experts *ie* persons who without formal training or qualifications in a particular area have nevertheless acquired their expertise purely through extensive involvement with a particular transaction.

180 Under English and Australian common law, such expertise is clearly recognised and accepted by the courts. In *R v Clare and Peach*[128] a policeman who had studied a video tape exhaustively for the purpose of testifying at the trial was allowed to give expert identification evidence on those persons seen in the tape. A similar approach was adopted in Australia in *R v Butera*[129] where translations by interpreters who had listened repeatedly to tape recordings of conversations partly in foreign languages were allowed in evidence.

181 In Australia, section 79 of the Uniform Acts has been held to be sufficiently broad to preserve the common law position on *ad hoc* experts. In *R v Leung*[130] it was held that an interpreter who had repeatedly listened to listening device tapes and tapes of police interviews with the accused qualified as an expert under section 79 to identify the voice on the listening device tapes as that of the accused.

182 In Report 102, the Australian Law Reform Commission concluded that the unlimited and broad scope of section 79 with regard to *ad hoc* experts did not raise any significant problems as it was in line with the existing common law and any specific problems in borderline cases could be dealt on a case by case basis through the exercise of the discretions under sections 135 and 136.

183 Section 79 requires demonstration of specialised knowledge based on a person's training, study or experience. The Australian Law Reform Commission recommended that the criteria "training", "study" or "experience" should remain as alternative criteria and not be amended to cumulative criteria as suggested by the Law Society of South Australia.[131] We agree.

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128 [1995] 2 Cr App R 333.

129 (1987) 164 CLR 180.

130 (1999) 47 NSWLR 405.

131 The Australian Law Reform Commission, *Uniform Evidence Law* (ALRC Report 102, 2005) at para 9.50.

C. Position in England and Australia – scope of expert's testimony

184 Although the way in which an expert attains his expertise is not crucial, the courts ensure that he cannot abuse his privilege by straying into areas in which he is not truly an expert and where his evidence is not helpful to the court.

185 The expert's area of expertise clearly and closely delimits the opinion evidence he can legitimately give: he is not permitted to give evidence on other areas.

186 Thus, in the controversial English decision of *R v MacKenney & Pinfold*[132] evidence from a psychologist on the existence of mental illness was rejected. In Ackner LJ's view, a psychologist, not being a medical man had no experience of direct personal diagnosis and therefore his evidence did not qualify as expert medical evidence.

187 The reluctance to allow experts to cross their field of expertise into areas in which they do not possess the requisite expertise is also evident in Australian common law. In *Pesisley v R*[133] Wood J in the New South Wales Court of Criminal Appeal again emphasised the importance of not permitting clinical psychologists to cross the bounds of their expertise and to enter the field of psychiatry.

188 Section 79 of the Uniform Acts in Australia has not altered the common law on this issue. A person possessing such specialised knowledge can give opinion evidence only on matters that are wholly or substantially based on *that knowledge*. The underlined words make it clear that the expert's evidence must relate at least substantially to his area of expertise.

189 Section 79 uses the word "substantially" because the Australian Law Reform Commission was of the view that no expert opinion is based *solely* on expert knowledge.[134] As Odgers says,[135] strictly speaking no opinion is based solely on expert knowledge because it will also be based on certain factual premises. Therefore, the Australian Law Reform Commission preferred the use of the adverb "substantially" because they felt that stricter wording[136] would serve only to encourage disputes as it would require too much of a "clear line to be drawn and no expert opinion is based solely on expert knowledge".[137]

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132 (1983) 76 Cr App R 271.

133 (1990) 54 A Crim R 42 at 52.

134 The Australian Law Reform Commission, *Evidence* (ALRC Report 38, 1987) at para 151(a).

135 S Odgers, *Uniform Evidence Law* (6th Ed, 2004).

136 Such as "to the extent that the opinion is based on that knowledge".

137 The Australian Law Reform Commission, *Evidence* (ALRC Report 38, 1987) at para 151(a), footnote 10.

190 In *HG v The Queen*[138] the High Court emphasised the importance of this requirement. Having observed that the expert's report was based on a "combination of speculation, inference, personal and second-hand views and a process of reasoning which went well beyond the field of expertise of a psychologist", Gleeson CJ stated:

> This was not a trial by jury, but in trials before judges alone as well as in trials by jury, it is important that the opinions of expert witnesses be confined, in accordance with section 79, to opinions which are wholly or substantially based on their specialised knowledge. Experts who venture 'opinions' (sometimes merely their own inference of fact), outside their field of specialised knowledge may invest those opinions with a spurious appearance of authority, and legitimate processes of fact-finding may be subverted.

D. Position in Singapore – qualifications of expert

191 The Singapore courts have adopted a flexible approach to who qualifies as an expert as the English and Australian courts have done.

192 In *Leong Wing Kong v PP*[139] Yong Pung How CJ said:

> The competency of an expert is a question for the court. Considerable laxity prevails with regard to the issue of who an expert is. In *PP v Muhamed bin Sulaiman*[140] it was observed that:
>
> > … while an expert must be 'skilled', he need not be so by special study, he may be so by experience, and the fact that he has not acquired his knowledge professionally goes merely to the weight and not admissibility.

193 In that case a CNB officer was held to qualify as an expert on the practice of drug users and drug suppliers by virtue of his work experience. In another case also involving a charge of drug trafficking, it was said that a doctor's long experience in handling drug users eminently qualified him as an expert on the correlation of the degree of addiction to the degree of withdrawal symptoms.[141]

194 Both these cases involved experts who acquired their in-depth knowledge on drug users through the practical experience gained while carrying out their general duties. Unlike *ad hoc* experts, their experience was not acquired specifically while carrying out investigations pertaining to the case in question.

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138 (1999) 197 CLR 414.

139 [1994] 2 SLR 54.

140 [1982] 2 MLJ 320.

141 *Lim Chuan Huat v PP*, Criminal Appeal No 57 of 1995.

195 There does not appear to be a Singapore authority directly addressing the issue of *ad hoc* experts. Although it is not clear on the face of section 47, the wording of the section is likely to be interpreted to be broad enough to encompass *ad hoc* experts since the courts have already shown considerable latitude in accepting expert evidence from experts who have derived their superior knowledge solely from experience. It is a short step from recognising expertise based on a breadth of general experience to recognising expertise based on a depth of particular experience in a particular transaction.

E. Position in Singapore – scope of expert's testimony

196 The wording of section 47 is sufficiently clear to impose strict limits on the scope of an expert's testimony. The words "the opinions upon that point" suggest that section 47 is even stricter than section 79 of the Uniform Acts which may allow experts to give some non-expert opinion evidence as long as their opinion is *substantially* based on their expert knowledge.

197 *Seah Chin Hong v Seah Say Yoong*[142] is a case which supports this view. *Seah* was an originating summons touching on the administration of the trusts of an estate. A certified public accountant gave expert evidence on the voluminous accounts and returns filed with the Registry of Companies, as was well within the scope of his expertise. He also expressed some opinions beyond his area of expertise on the executor's rights and obligations. Goh Phai Cheng JC refused to receive the evidence, rightly it is submitted, saying:

> In my view such opinions are irrelevant. Section 47 of the Evidence Act provides only an expert's opinion on a point of foreign law or of science or art, or as to identity or genuineness of handwriting or finger impressions is relevant. Whether or not the defendant has failed to carry out his duties as an executor of the estate or is entitled to be reimbursed by the estate for expenses claimed by him as being expenses properly incurred by him in the administration of the Estate are questions to be decided by the court.

F. Recommendations for reform

198 As far as the issue of expertise gained purely by experience is concerned, we recommend that for the avoidance of doubt, section 47 should be amended to admit opinions based on such evidence.

199 We are of the view however, that section 47 should not be amended to admit opinions which are "substantially" based on expert knowledge. Such an amendment may result in an increase in experts unnecessarily straying beyond their field of expertise and offering unhelpful non-expert opinions on matters that should be left

142 [1993] SGHC 151.

entirely to the court to decide. This would also result in trials being unnecessarily prolonged and a misdirection of judicial and party resources.

200 It should also be noted that our new Order 40A of the Rules of Court which was introduced following Lord Woolf's overhaul of the English rules of civil procedure reiterates the duty of experts to provide opinions in relation only to matters within their own expertise.[143] The Practice Directions accompanying this rule require experts to make it clear in their report when a question or issue falls outside their expertise.

VI. The Basis Rule and Hearsay evidence

A. The rule

201 The basis rule[144] requires the underpinnings of an expert's opinion to be proven by admissible evidence, failing which the expert's opinion is either inadmissible or carries much-reduced weight.[145]

202 This section will consider the particular issue of how the hearsay rule can cause difficulties in proving the underpinnings of an expert's opinion. The next section will consider the consequence that follows if the basis rule is not met and if a party adducing expert opinion evidence fails to prove some or all of the factual underpinnings of that opinion.

203 The conceptual principle underlying the basis rule is that if an expert is to render the assistance for which his evidence is adduced, he must "furnish the trier of fact with criteria enabling evaluation of the validity of the expert's conclusions".[146]

204 Thus, the basis rule requires:

(a) The expert to state explicitly the facts or assumptions upon which his opinion is based;[147]

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143 See O 40A, r 2(1).

144 See *Khoo Bee Keong v Ang Chun Hong* [2005] SGHC 128.

145 For the precise consequence, see Heading VII below.

146 *Makita (Australia) Pty Ltd v Sprowles* (2001) 52 NSWLR 705 at para 59; see also *Gunapathy Muniandy v Khoo James* [2001] SGHC 165 at para 309 below.

147 In civil matters, by virtue of O 40A, r 3 all expert reports must give details of any literature or other material relied on and the basis upon which the opinion is given.

(b) That insofar as his opinion is based on facts, that those facts be proved by admissible evidence.[148]

205 There are three sources from which an expert can draw the basis of his opinion:

(a) Facts observed by the expert;

(b) Facts drawn from the expert's general experience; and

(c) Facts told to the expert which he has assumed to be correct for the purposes of his opinion.

206 Expert witnesses like lay witnesses are bound by the rule against hearsay. An expert cannot testify to facts of which he has no personal knowledge. Those facts must be proved by independent, direct evidence.

207 Insofar as the expert has himself observed relevant facts, he is a witness of fact and no hearsay issue arises: he is able to give the necessary direct evidence from his own personal knowledge.

208 The use of hearsay by experts is therefore not an issue in (a) but is an issue in (b) and (c) above.

209 The intersection between the basis rule and the hearsay rule causes particularly acute problems in the following class of cases:

(a) Evidence of a patient's medical history including his past symptoms and state of mind;

(b) Evidence by valuers about the selling price of comparable properties of which they have no personal knowledge;[149]

(c) Formal hospital, accounting or other uncontested records;

(d) Evidence relating to the financial condition of a person or business expressed by a person with financial expertise or experience;

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148 *Makita (Australia) Pty Ltd v Sprowles* (2001) 52 NSWLR 705 at para 64.

149 *English Exporters (London) Ltd v Eldonwall Ltd* [1973] 1 Ch 415. See also *Intercontinental Specialty Fats Berhad v Bandung Shipping Pte Ltd* [2004] SGHC 1 which relies on *Eldonwall* to draw a distinction, rightly it is submitted, between evidence of actual transacted prices related to the expert (hearsay) and evidence of asking prices related by sellers (non-hearsay).

(e) Experienced drug users identifying drugs based on their expertise; and

(f) Proof of native land.

210 If too rigorously enforced in these cases, the basis rule combined with the rule against hearsay could severely curtail the admission of highly useful and highly reliable expert opinions. However, the courts have not often been so strict. As Heydon[150] very aptly commented on the application of the basis rule:

> The rule which prohibits an opinion based on factual assumptions unless facts corresponding with the assumptions are proved by admissible evidence is made workable not only by the generosity of the litigants, but more important by a substantial degree of flexibility in its application by the courts.

211 This is undoubtedly true in Singapore as it is in Australia. The question for us is whether we should continue to rely on the generosity of the litigants and the flexibility of the courts or put the principles on a firmer footing.

B. Position in Singapore – facts related to the expert by others

212 The hearsay rule, generally speaking, excludes out-of-court utterances as evidence of the truth of the facts stated in those utterances.

213 Section 62 of the Evidence Act sets out the hearsay rule as applicable in Singapore. In the fashion characteristic of the Evidence Act, it is cast as an inclusionary rule mandating direct evidence rather than as an exclusionary rule prohibiting hearsay evidence. In terms, it provides as follows:

> **Oral evidence must be direct**
>
> 62. —(1) Oral evidence must in all cases whatever be direct —
>
> (*a*) if it refers to a fact which could be seen, it must be the evidence of a witness who says he saw that fact;
>
> (*b*) if it refers to a fact which could be heard, it must be the evidence of a witness who says he heard that fact;
>
> (*c*) if it refers to a fact which could be perceived by any other sense or in any other manner, it must be the evidence of a witness who says he perceived that fact by that sense or in that manner;

150 Heydon JD, *Cross on Evidence* (7th Ed, 2004).

> (*d*) if it refers to an opinion or to the grounds on which that opinion is held, it must be the evidence of the person who holds that opinion on those grounds.

214 The Evidence Act contains two sections which touch on the proof of the factual underpinnings of an expert's opinion. The relevant provisions are sections 48 and 53.

215 Section 48 of the Evidence Act provides as follows:

> **Facts bearing upon opinions of experts**
>
> 48. Facts not otherwise relevant are relevant if they support or are inconsistent with the opinions of experts when such opinions are relevant.

216 Section 53 of the Evidence Act provides as follows:

> **Grounds of opinion when relevant**
>
> 53. Whenever the opinion of any living person is relevant, the grounds on which such opinion is based are also relevant.

217 The exact scope of sections 48 and 53 have not been analysed in case law or academic writings. On their plain wording, and reading the modern "admissible" for the archaic "relevant" in the usual way, the sections appear to be wide enough completely to circumvent the stipulation for direct evidence in section 62 by rendering *any* evidence admissible so long as it forms the grounds of the expert's opinion or tends to confirm or undermine his opinion.

218 However, it is submitted that the better view is that these sections do not punch such a large hole in the direct evidence rule found in section 62(1). Since an opinion is valueless unless the grounds on which it is based are known, these sections should be seen as merely being a necessary corollary to the admission of expert evidence under section 47. The evidence admitted under these sections is admitted merely to reveal the basis of the opinion and can be used only to bolster or undermine the credibility of the opinion. Such evidence is not admitted to establish the truth of those facts, which must be proven by other, admissible evidence.

219 This reading of sections 48 and 53 is consistent with the High Court decision in *Gunapathy Muniandy v Khoo James*.[151] In that case, GP Selvam J held that the purpose of section 48 of the Evidence Act was to enable the judge to ascertain whether the opinion was worthy of regard:

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151 [2001] SGHC 165.

> *The court must know the premises on which the expert's opinion is founded, so as to judge the strength of that opinion*. The Evidence Act by section 48 provides that 'facts not otherwise relevant are relevant if they support or are inconsistent with the opinions of experts when such opinions are relevant'. *The underlying jurisprudential basis of this provision is that unless an opinion is based on proven facts and findings it would be speculative and useless*. [emphasis added]

220 The learned Judge also considered the scope of section 53 of the Evidence Act and quoted *Sarkar on Evidence* on its rationale:

> The soundness or otherwise of the opinion expressed must depend to a large extent on the reasons on which the opinion is held. If the grounds are known, *the value of the opinion may be increased or lessened* … [emphasis added]

221 Again, the purpose of section 53 is taken to be directed at enabling the court to assess the soundness of the opinion, *ie* the weight to be attached to it, rather than to allow those facts to be proved by way of an exception to the hearsay rule.

222 This interpretation of the sections is also supported by the Malaysian case of *Pacific Tin Consolidated Corp v Hoon Wee Thim*.[152] In that case, the appellants maintained large ponds separated by bunds for their dredge mining operations. A large breach in the bund between two large ponds caused a violent outflow of water that caused damage to the respondent's adjacent property. The fundamental issue at trial was the cause of the breach in the bund.

223 The appellants' two expert geologists concluded that the breach was due entirely to the eruption of a subterranean spring which was an unforeseeable act of God. In forming this opinion however, both geologists relied on the hypotheses of certain data supplied by the appellants, namely, the boil, the quick sand and the artesian flow.

224 The Federal Court held that:

> … in all cases in which opinion evidence is receivable, whether from experts or not, the grounds or reasoning upon which such opinion is based may properly be inquired into. Where the opinion of experts is based on reports of facts, those facts, unless within the experts' own knowledge, must be proved independently: see *Phipson on Evidence* (10th Ed) at 1280.

225 The Court's requirement of independent proof supports the view that neither sections 48 nor 53 assist in satisfying the basis rule by admitting the expert's own evidence of facts not within his personal knowledge to prove those very facts.

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152 [1967] 2 MLJ 35.

226 Insofar as the expert relies on hearsay facts which form part of his general experience, the position in Singapore has not been extensively canvassed in the case law, but what authority[153] there is adopts the same position as in England. That position and the "general experience" fiction it uses is discussed further in [255] below.

227 Thus, in Singapore, the factual underpinnings of an expert's opinion which cannot be attributed to his "general experience" is subject to the full rigour of the hearsay rule.

C. Position in Singapore – opinions of others

228 In addition to relying on facts related to the expert by others, the expert may also rely on the opinions of others, typically in professional texts or treatises.

229 There is no section in the Evidence Act which specifically considers how an expert can satisfy the basis rule where he relies on the opinions of others.

230 There is, however, a generally applicable section which may be of relevance. Section 62(2) of the Evidence Act allows opinions to be proved provided certain conditions are satisfied.

231 Section 62(2) provides as follows:

> The opinions of experts expressed in *any treatise commonly offered for sale* and the grounds on which such opinions are held may be proved by the production of such treatise *if the author is dead or cannot be found or has become incapable of giving evidence or cannot be called as a witness without an amount of delay or expense which the court regards as unreasonable*. [emphasis added]

232 The first point to note about section 62(2) is that once the conditions of admissibility are satisfied, the material which it makes admissible comes in as evidence whether or not it comes through an expert, or indeed whether or not it comes through any witness at all. In other words, section 62(2) constitutes the treatise *per se* as the evidence and admits the treatise in its own right if the necessary conditions are fulfilled.

233 Thus, in the unreported case of *Wong Kai Woon alias Wong Kai Boon v Wong Kong Hom alias Ng Kong Hom*,[154] Chan Seng Onn JC (as he then was) applied the provision to admit into evidence certain books on Chinese marriage laws and customs even though the party adducing the opinions set out in the books did so from the bar, so

153 *Intercontinental Specialty Fats Bhd v Bandung Shipping Pte Ltd* [2004] SGHC1.

154 [2000] SGHC 176.

to speak, and not through an expert witness who had relied on them in forming an opinion and who was subject to cross-examination.[155]

234 Section 62(2) was, however, not intended as a solution to the problem which we are considering, namely, how the hearsay rule can combine with the basis rule to interfere with the reception of useful and reliable opinion evidence. Instead, section 62(2) is best seen as a free-standing exception to the hearsay rule in the mould of sections 34–40 of the Evidence Act. It creates an additional class of non-direct evidence which is admitted because the evidence, even though not direct, has sufficiently strong hallmarks of reliability to justify reception as a result of antiquity, official provenance or the manner in which it was recorded.

235 As a result, two clear problems arise from the use of this provision to admit the opinion-based underpinnings of expert evidence. First, the provision requires that the treatise[156] must be "commonly offered for sale".[157] This causes problems where an expert relies in forming his opinion on a treatise which is out of print[158] or which was not offered for sale to begin with.[159] Such works do not fall within section 62(2) even if the materials are of the utmost reliability. Second, even where the treatise is commonly offered for sale, the evidence is nevertheless inadmissible unless the unavailability of the author is established under the second condition.

236 Despite the restrictive wording of section 62(2), our understanding of the situation is that this does not create a problem in practice as the issue is dealt with by parties not disputing the admissibility of these materials either through choice or through ignorance of the strict scope of the provision. If a strict interpretation is adopted, however, the restrictive and clumsy wording of section 62(2) very much limits its usefulness in connection with treatises relied upon by experts.

D. Position in Australia

237 At common law, the Australian courts have applied the basis rule strictly. In *Ramsay v Watson*,[160] the plaintiff sued the defendant for damages arising from lead poisoning alleged to have been contracted as a result of working conditions in the New South Wales Government Printing Office. The defence attacked causation and adduced

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155 [2000] SGHC 176 at para 50.

156 We assume that the word "treatise" is wide enough to cover all articles, textbooks and other sources from which an expert may draw the opinions of others to assist him in arriving at an opinion.

157 This requirement apparently stems from the view that evidence commonly offered for sale would have been subject to the rigours of publication and peer comment and hence more reliable. Further, older out-of-print texts may be unreliable through the effusion of time.

158 For example, out-of-print textbooks or discontinued journals.

159 For example, an unpublished university thesis.

160 (1961) 108 CLR 642.

an expert medical opinion to prove that 21 other workmen who had served in the same conditions as the plaintiff:

(a) Were not *then* suffering from lead poisoning, on the basis of the expert's physical examination of them and blood and other tests; and

(b) Had a *history* of good health, on the basis of the medical history which they related to the same expert.

238 The defence, however, did not call those 21 workmen and attempted for point (b) to rely on the medical expert's evidence of the workmen's medical history taken at the time of examination.

239 The High Court endorsed the trial judge's refusal to admit the expert opinion on point (b) as the underlying facts (the workmen's *past* good health) had not been proved by admissible evidence.[161] The High Court said:[162]

> Hearsay evidence does not become admissible to prove facts because the person who proposes to give it is a physician. And, if the man whom the physician examined refuses to confirm in the witness box what he said in the consulting room, then the physician's opinion may have little or no value, for part of the basis of it has gone. Each case depends on its own facts.

240 The Australian Law Reform Commission criticised the application of the hearsay rule to the evidence of experts setting out the basis of their opinions for the following reasons:[163]

(a) A "schizophrenic" task is imposed on the courts who are called upon to observe the common law distinction between a permitted use (bolstering the opinion) and forbidden use (proving the facts themselves) of hearsay evidence.

(b) The unsatisfactory result of the rule was that several unclear hearsay exceptions had been developed at common law to enable an expert to use technical material of a general nature which is widely used in their expert field (*Borowski v Quayle*[164] and *Rowley v London and North Western Railway*[165]) and materials that are part of the *corpus* of

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161 *Makita (Australia) Pty Ltd v Sprowles* (2001) 52 NSWLR 705.

162 (1961) 108 CLR 642 at 649.

163 The Australian Law Reform Commission, *Evidence (Interim)* (ALRC Report 26, 1984) Vol 1 at para 334.

164 [1996] VR 382.

165 (1873) LR Exch 221.

knowledge with which the expert is expected to be acquainted like textbooks and journals (*English Exporters Pty Ltd v Eldonwall*[166]).

(c) Although strict adherence to the hearsay rule is often waived by the parties especially in respect of uncontentious documents such as hospital records, the rule lies in wait to be used whenever it suits a party for tactical reasons.[167]

(d) The hearsay rule was inflexible and no longer susceptible to common law development to suit changed circumstances: *DPP v Myers*.[168]

(e) It artificially interrupts the witness' testimony and creates pressures that can upset and distract a witness.

(f) It unnecessarily increases costs as calling the maker of a statement can sometimes be very expensive.

241 Curiously, though, while the Uniform Acts specifically abolish the common knowledge rule,[169] there is no express abolition of the basis rule.

242 Instead, the basis rule is abolished indirectly through section 60 of the Uniform Acts, a section of general application. That section allows hearsay statement which comes into evidence for one purpose to come into evidence for all purposes, including for the purpose of proving the facts stated in the hearsay statement. Thereby, the section has the practical effect of abolishing the hearsay rule insofar as it would operate to prevent the fact-based underpinnings of an expert's opinion from being proved by hearsay evidence given by the expert himself.

243 Section 60 provides as follows:

> The hearsay rule does not apply to evidence of a previous representation that is admitted because it is relevant for a purpose other than proof of the fact intended to be asserted by the representation.[170]

166 [1973] 1 Ch 415.

167 [1996] Crim LR 732.

168 *DPP v Myers* [1965] AC 1001.

169 And the ultimate issue rule.

170 See in this connection s 147(3) of the Evidence Act which makes a prior inconsistent statement, once proved for the purpose of undermining credibility, evidence of the truth of the facts stated in it.

244 Though the section was largely intended to reform the law relating to prior consistent and inconsistent statements,[171] it has had an impact on the manner of proving the factual basis of an expert's opinion.

245 This is because section 60 is broad enough to admit an expert's report of a fact told to him out of court as evidence that that fact is true and not merely as part of the foundation to bolster his opinion. Since these representations of fact are primarily adduced to support the expert's opinion (which is a non-hearsay purpose), section 60 enables these representations to be used as evidence of the truth of the facts asserted therein. For example, if there is sufficient evidence to support a doctor's opinion to pass the relevancy threshold discussed above, then that doctor's evidence could be used by virtue of section 60 to establish also the truth of the medical history related to him by the patient even though the patient himself is not called as a witness.

246 Not surprisingly, section 60 is regarded as a controversial exception to the hearsay rule and has given rise to the following concerns:[172]

(a) It is undesirable and inappropriate that unsworn and untested medical histories may be accepted as evidence of the facts. Under section 60, for example, a doctor's evidence of statements made to him by malingering plaintiffs are admissible to prove the truth of the assertions in those statements as an exception to the hearsay rule.[173]

(b) An exclusionary discretion on grounds of prejudicial effect[174] is an insufficient safeguard to prevent the acceptance of contested facts that are not independently proven. Also applications under this section are costly in time and money and can result in inconsistent decisions on similar facts.

(c) Factual statements made to an expert for the purposes of litigation are inherently unreliable as the communication will usually be made to the expert by a person with a vested interest in the facts being as specified in the expert's report. This is a particularly worrying problem in large commercial cases where voluminous expert reports are carefully constructed for the purposes of litigation.

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171 A similar effect has been achieved in Singapore in the case of prior *inconsistent* statements only by s 147(3) of the Evidence Act.

172 The Australian Law Reform Commission, *Uniform Evidence Law* (ALRC Report 102, 2005) at paras 7.107–7.114.

173 The Australian Law Reform Commission, *Evidence* (ALRC Report 38, 1987) at para 145, *R v Lawson* [2000] NSWCCA 214.

174 See ss 135 and 136 of the Uniform Evidence Acts (Aust).

(d) Going one step further, a fear observed in the American context is that parties may be encouraged intentionally to "feed" otherwise inadmissible facts to their expert as a way of circumventing the hearsay rule and getting those facts into evidence.[175]

247 The Australian Law Reform Commission considered these criticisms and concluded that there were sufficient safeguards within the framework of the Uniform Acts to deal with any untoward consequences of section 60.

248 They were of the view that in most cases, a party who has narrated his medical history to an expert will be called to testify as a matter of practical forensic reality to bolster the persuasiveness of the medical opinion. The request provisions under Part 4.6 of the Uniform Acts that enable a party to request that the person who made a previous representation be called as a witness as well as the adverse inferences that can be drawn when a party is not called to testify are further tools to prevent the abuse of section 60.

249 In the few cases where direct evidence is not given and the contested medical history cannot be adequately tested by cross-examination, the courts can use their discretionary powers[176] to limit the use of the evidence. There is less potential for wastage of time under the Uniform Acts as under the common law the opposing party can take technical objections to any evidence led, whether in dispute or not. Under the Uniform Acts, that party must justify rejection of the evidence under section 135 or a limitation of use under section 136.[177]

250 The Australian Law Reform Commission concluded also that section 60 was necessary to preserve the old common law hearsay exceptions which otherwise would have been lost upon the enactment of the Uniform Acts.

251 The combined effect of the operation of section 60 and the leniency with which the basis rule is applied in Australia is that the courts in that jurisdiction have been given the statutory licence to adopt a relatively wide approach to the reception of expert evidence.

E. Position in England – common law

252 At common law, the English courts have taken a liberal view of extrinsic materials which influenced or assisted the expert in forming his opinion in a general sense even though strictly speaking, all such material is *prima facie* hearsay, even the facts drawn from the expert's own general experience.

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175 Joanne A Epps, "Clarifying the Meaning of Federal Rule of Evidence 703" 36 BCL Rev 53.

176 See ss 135 and 136 of the Uniform Evidence Acts (Aust).

177 The Australian Law Reform Commission, *Uniform Evidence Law* (ALRC Report 102, 2005) at para 7.83

253 The reason for this liberal approach is rooted in pragmatism rather than conceptual coherence. The concern again is the virtual impossibility of strict compliance with the hearsay rule and the potential for excluding much highly useful and highly reliable opinion evidence. As the English courts said in another case, "no one professional man can know from personal observation more than a minute fraction of the data which he must every day treat as working truths".[178]

254 Thus, the English courts have adopted the "general experience" fiction to gloss over the hearsay rule where the expert's hearsay sources are not explicitly referred to. In *English Exporters (London) Ltd v Eldonwall Ltd*,[179] a case concerning the expert evidence of a valuer, Megarry J said this:

> Let me … confine myself to the admissibility of hearsay in chief and in re-examination in these valuation cases. In such circumstances, two of the heads under which the valuer's evidence may be ranged are opinion evidence and factual evidence. As an expert witness, the valuer is entitled to express his opinion about matters within his field of competence. In building up his opinions about values, he will no doubt have learned much from transactions in which he has himself been engaged, and of which he could give first-hand evidence. *But he will also have learned much from other sources, including much of which he could give* no *first-hand evidence*. Textbooks, journals, reports of auctions and other dealings, and information obtained from his professional brethren and others, some related to particular transactions and some more general and indefinite, will all have contributed their share. Doubtless much, or most, of this will be accurate, though some will not; and even what is accurate so far as it goes may be incomplete, in that nothing may have been said of some special element which affects values. *Nevertheless, the opinion that the expert expresses is none the worse because it is in part derived from the matters of which he could give no direct evidence*. Even if some of the extraneous information which he acquires in this way is inaccurate or incomplete, the errors and omissions will often tend to cancel each other out; and the valuer, after all, is an expert in this field, so that the less reliable the knowledge that he has about the details of some reported transaction, the more his experience will tell him that he should be ready to make some discount from the weight that he gives it in contributing to his overall sense of values … *No question of giving hearsay evidence arises in such cases; the witness states his opinion from his general experience* … [emphasis added]

255 Thus the English courts side-stepped the hearsay problem by the fiction of holding that the expert is not giving inadmissible hearsay evidence on these points but is giving admissible non-hearsay evidence derived from his "general experience".

256 More difficult is the situation where an expert witness cites specific articles, reports or tables to the court as specific authority or support for an opinion that the

178 See *Borowski v Quayle* [1966] VR 382 at 386–387.

179 [1973] 1 Ch 415.

expert is canvassing. The difficulty in this area is that the expert's express citation of that material to the court makes patent the hearsay problem which is latent in the type of evidence considered immediately above.

257 Thus, in *Eldonwall*, Megarry J went on to say:

> On the other hand, quite apart from merely expressing his opinion, the expert often is able to give factual evidence as well. If he has first hand knowledge of a transaction, he can speak of that … So far as the expert gives factual evidence, he is doing what any other witness of fact may do, namely, speaking of that which he has perceived for himself. No doubt in many valuation cases the requirement of first-hand evidence is not pressed to an extreme … it may be that it would be possible for a valuer to fill a gap in his first-hand knowledge of a transaction by some method such as stating in his evidence that he has made diligent enquiries of some person who took part in the transaction in question, but despite receiving full answers to his enquiries, he discovered nothing which suggested to him that the transaction had any unusual features which would affect the value as a comparable. But basically, the expert's factual evidence on matters of fact is in the same position as the factual evidence of any other witness …
>
> That being so, it seems to me quite another matter when it is asserted that a valuer may give factual evidence of transactions of which he has no direct knowledge, whether *per se* or whether in the guise of giving reasons for his opinion as to value. It is one thing to say 'From my general experience of recent transactions comparable to this one, I think the proper rent should be £X': it is another thing to say 'Because I have been told by someone else that the premises next door have an area of X square feet and were recently let on such-and-such terms for £Y a year, I say the rent of these premises should be £Z a year.' What he has been told about the premises next door may be inaccurate or misleading as to the area, the rent, the terms and much else besides. It makes it no better when the witness expresses his confidence in the reliability of his source of information: a transparently honest and careful witness cannot make information reliable if, instead of speaking of what he has seen and heard for himself, he is merely retailing what others have told him. The other party to the litigation is entitled to have a witness whom he can cross-examine on oath as to the reliability of the facts deposed to, and not merely as to the witness's opinion as to the reliability of information which was given to him not on oath, and possibly in circumstances tending to inaccuracies and slips …

258 Despite this, though, there is a recognition in the case law that such hearsay evidence is often of high probative value and may be relied upon for hearsay purposes without calling their makers on three grounds:[180]

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180 It should be noted that this does not extend to the reliance on the experimentation, testing and observation which links the expertise to the evidence in the case in question. Hence where such testing have been done by assistants or others, then these assistants would have to be called to testify unless otherwise agreed between the parties.

(a) It would be better for such materials to be disclosed as they would be open to scrutiny by the court and by the opposing party and their experts.[181]

(b) Second, the expert by his specialised skills as an expert is regarded as being able to filter such materials and ensure that only relevant and reliable materials would be provided.[182]

(c) Third, different considerations arise in cases of expert evidence where some reference to hearsay materials should be allowed as opposed to evidence of fact where the hearsay rule should be strictly observed.

F. Position in England – civil cases

259 The current position on the hearsay rule in England differs in civil cases and criminal cases. In civil cases, the Civil Evidence Act 1995 has abolished the rule against hearsay. Section 1 provides as follows:

> **1 Admissibility of hearsay evidence**
>
> (1) In civil proceedings evidence shall not be excluded on the ground that it is hearsay.
>
> (2) In this Act—
>
> (a) 'hearsay' means a statement made otherwise than by a person while giving oral evidence in the proceedings which is tendered as evidence of the matters stated; and
>
> (b) references to hearsay include hearsay of whatever degree.

260 The rule against hearsay is therefore no longer an issue in connection with expert testimony in civil cases in England.

261 Such a radical and simple reform is undoubtedly attractive, abolishing as it does the entire hearsay rule. However, it is well beyond the terms of reference of this sub-committee. We therefore look to the English criminal law, where the hearsay rule still holds sway, for guidance on models for incremental reform in Singapore.

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181 See *Customglass Boats Ltd v Salthouse Brothers Ltd* [1976] 51 ALR 735.

182 See *R v Abadom* [1983] 1 WLR 126 which involves a set of statistics relating to the refractive index of glass.

G. Position in England – criminal cases

262 In criminal cases in England, expert evidence is now governed by section 30 of the Criminal Justice Act 1988. Section 30 provides as follows:

> 30. —(1) An expert report shall be admissible as evidence in criminal proceedings, whether or not the person making it attends to give oral evidence in those proceedings.
>
> (2) If it is proposed that the person making the report shall not give oral evidence, the report shall only be admissible with the leave of the court.
>
> (3) For the purpose of determining whether to give leave the court shall have regard—
>
> (a) to the contents of the report;
>
> (b) to the reasons why it is proposed that the person making the report shall not give oral evidence;
>
> (c) to any risk, having regard in particular to whether it is likely to be possible to controvert statements in the report if the person making it does not attend to give oral evidence in the proceedings, that its admission or exclusion will result in unfairness to the accused or, if there is more than one, to any of them; and
>
> (d) to any other circumstances that appear to the court to be relevant.
>
> (4) An expert report, when admitted, shall be evidence of any fact or opinion of which the person making it could have given oral evidence.
>
> (5) In this section 'expert report' means a written report by a person dealing wholly or mainly with matters on which he is (or would if living be) qualified to give expert evidence.

263 With the leave of court, therefore, expert reports are admissible without the need to call the expert to give oral evidence. This amounts to a statutory exception to the hearsay rule. However, the wording of section 30(4) clearly does not go as far as allowing facts from sources relied on by the expert to come into evidence in their own right. Only facts that the expert himself has personal knowledge of and could have testified to orally come in as evidence through section 30.

264 Section 30 does not therefore address the more critical problem of expert opinions based upon scientific tests run by assistants or other extrinsic material, including material setting out the opinions of others, customarily relied upon by experts.

265 This issue motivated the Law Commission to look into whether the rules of evidence in criminal trials should be reformed to ensure there is no evidential uncertainty over the use of the work of assistants.[183]

266 Under the state of the law at the time of the Law Commission's report, hearsay in expert reports was admissible only if a common law exception to the hearsay rule applied. The Law Commission summarised the prevailing common law exceptions as follows:[184]

> Once the primary facts on which the expert's opinion is based have been proved by admissible evidence, the expert is entitled to draw on the work of others as part of the process of drawing conclusions from the facts.[185] This exception extends to any technical information widely used by members of the expert's profession and regarded as reliable.[186] This includes knowledge that forms part of the expert's professional expertise although he has not acquired it through personal experience, for example the reported data of fellow scientists learned by perusing their reports in books and journals.[187]

267 In their Report, the Law Commission considered five options to deal with difficulties caused by the hearsay rule in connection with the work of experts' assistants:

(a) Make no change to the law. This option was dismissed because the existing law enabled parties to require the attendance of people who carried out routine tests although that exercise was fruitless and resulted in the wastage of time and money on the strict proof of purely formal evidence.

(b) Retain the present system and impose cost sanctions against counsel concerned. This option was also dismissed as the Law Commission felt, having reviewed the law on the circumstances in which counsel can be held personally liable in costs, it would not be possible or desirable for sanctions to be imposed against counsel for requiring the attendance of people whose evidence was relied on by the expert except in the very clearest cases of obvious time-wasting.

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183 Law Commission of England and Wales, *Evidence in Criminal Proceedings: Hearsay and Related Matters* (Law Com No 245, June 1997).

184 Law Commission of England and Wales, *Criminal Law: Evidence in Criminal Proceedings: Hearsay and Related Topics* (Consultation Paper No 138, 1995) at paras 15.6–15.9.

185 *Abadom* (1983) 76 Cr App R 48.

186 *Rowley v London and North West Railway* (1873) LR 8 Ex 221

187 *Wigmore on Evidence* vol 2 (1904) at p 784.

(c) Create a new statutory exception to the hearsay rule for information relied upon by an expert. This option was rejected as it would deny the opposing party the right to destroy or weaken the evidence by cross-examining the person providing the information in every case.

(d) Create a new statutory exception to the hearsay rule for information relied upon by an expert and provided by someone who cannot be expected to have any recollection of the matters stated. This was a preferred option because it would achieve two aims. First, it would save wasteful and unnecessary examination-in-chief designed to elicit formal facts. Second it would prevent time wasted on requiring the attendance of someone who was unable to add to the evidence before the court. However this option was not eventually adopted because persons with experience in this problem advised the Law Commission that assistants are normally expected to remember their work, and therefore would not fall within such an exception, and because assistants and experts work so closely that they would be unable to tell the court anything the expert could not.

(e) Create a new statutory exception to the hearsay rule for information relied on by an expert, subject to a judicial discretion to direct that the supplier of the information be tendered for cross-examination.

268 The last option was eventually adopted and enacted in what is now section 127 of the Criminal Justice Act 2003.

> Expert evidence: preparatory work
>
> (1) This section applies if–
>
> > (a) a statement has been prepared for the purposes of criminal proceedings,
> >
> > (b) the person who prepared the statement had or may reasonably be supposed to have had personal knowledge of the matters stated,
> >
> > (c) notice is given under the appropriate rules that another person (the expert) will in evidence given in the proceedings orally or under section 9 of the Criminal Justice Act 1967 (c 80) base an opinion or inference on the statement, and
> >
> > (d) the notice gives the name of the person who prepared the statement and the nature of the matters stated.
>
> (2) *In evidence given in the proceedings the expert may base an opinion or inference on the statement*.
>
> (3) *If evidence based on the statement is given under sub-s (2) the statement is to be treated as evidence of what it states*.

> (4) This section does not apply if the court, on an application by a party to the proceedings, orders that it is not in the interests of justice that it should apply.
>
> (5) The matters to be considered by the court in deciding whether to make an order under sub-s (4) include–
>
> > (a) the expense of calling as a witness the person who prepared the statement;
> >
> > (b) whether relevant evidence could be given by that person which could not be given by the expert;
> >
> > (c) whether that person can reasonably be expected to remember the matters stated well enough to give oral evidence of them.
>
> (6) Subsections (1) to (5) apply to a statement prepared for the purposes of a criminal investigation as they apply to a statement prepared for the purposes of criminal proceedings, and in such a case references to the proceedings are to criminal proceedings arising from the investigation.
>
> (7) The appropriate rules are rules made-
>
> > (a) under section 81 of the Police and Criminal Evidence Act 1984 (advance notice of expert evidence in Crown Court), or
> >
> > (b) under section 144 of the Magistrates' Courts Act 1980 (c 43) by virtue of section 20(3) of the Criminal Procedure and Investigations Act 1996 (c 25) (advance notice of expert evidence in magistrates' courts).
>
> [emphasis added]

269 Under this section, the party intending to adduce an expert report in criminal proceedings must provide to the other party, together with the report, a list of persons involved in its preparation and the tasks performed by them. The onus will then be on the opposing party to satisfy the court that it is in the interests of justice that those assistants be called to testify in person. If the opposing party fails to convince the court of the need to call these makers, the expert's recounting of the expert's statements to him become evidence of what they state by way of exception to the hearsay rule.

270 In its Consultation Paper, the Law Commission had been hesitant to approve a proposal along the lines of section 127 since it would require the defence to disclose the nature of its case in advance.[188] However, this objection was superseded by subsequent legislation. After the publication of the Consultation Paper, section 5 of the Criminal Procedure and Investigations Act 1996 was enacted requiring advance disclosure by the

188 Law Commission of England and Wales, *Criminal Law: Evidence in Criminal Proceedings: Hearsay and Related Topics* (Consultation Paper No 138, 1995) at para 15.22.

defence, in trials on indictment, of the nature of the defence and the issues which will be in dispute.

271 As a result, a requirement that the defence reveals the nature of the questions it proposes to ask the expert's assistants no longer made new inroads into the rights of the defendant and that objection to what is now section 127 fell away. Further, under section 127, all the defence has to do is to reveal the general line of its inquiry not the details of the questions proposed.[189]

272 Although section 127 is a step in the right direction, it is a narrow statutory exception designed to address only the issue of hearsay statements made by an out-of-court assistant to an in-court expert. It was not intended to and does not go as far as the broadly drafted wording of section 60 of the Uniform Acts which is capable of applying to any hearsay statements comprised in an expert's evidence to satisfy the basis rule. Section 127 does not cover hearsay issues which arise when a medical history is given by a patient to a medical expert nor does it cover the expert's consultations with colleagues or the parties themselves prior to the criminal proceedings.

273 Also unlike section 60, section 127 does not repeal and accommodate the ill-defined common law hearsay exceptions. Therefore these exceptions continue to prevail in criminal trials in England.

H. Position under the Federal Rules of Evidence

274 Rule 703 of the United States Federal Rules of Evidence provides:

> **Rule 703. Bases of Opinion Testimony by Experts**
>
> The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. *If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted.* Facts or data that are otherwise inadmissible shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect. [emphasis added]

275 Rule 703, therefore, leaves it to the prevailing methodology in the expert's field to draw the line between those facts which need to be proved by admissible evidence and those which do not in order for his opinion to be admissible. Facts which are of a

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189 Law Commission of England and Wales, *Evidence in Criminal Proceedings: Hearsay and Related Matters* (Law Com No 245, June 1997) at paras 9.21 to 9.22.

type reasonably relied upon by experts from the same field need not be proved directly in order for the opinion to be admissible. It has been clarified that this rule is not an exception to the hearsay rule because even when such disclosure is allowed, the jury is not permitted to rely upon those facts as full substantive evidence. Those facts are admitted only for the limited purpose of explaining or supporting the expert's opinion:

> On the one hand, the jury may consider the facts or data upon which the expert based her opinion to assess the weight to be given to that opinion. Yet, on the other hand, the jury, when deciding whether to arrive at the same conclusion, cannot accept what the expert relied upon as true.[190]

276 This is broadly consistent with our view of the workings of sections 48 and 53 of the Evidence Act.

277 While Rule 703 is not a hearsay exception, the Federal Rules of Evidence does have a list of express hearsay exceptions in Rule 803. These exceptions, like section 60 of the Uniform Acts, are of general application and sufficiently wide to admit much hearsay evidence on which an expert would rely as evidence of the truth of the matters stated in them.

278 Unlike the English and Australian law, the Federal Rules of Evidence do make express provision to deal with the expert's reliance on the opinions of others. Rule 803 provides that:

> **Rule 803. Hearsay Exceptions; Availability of Declarant Immaterial**
>
> The following are not excluded by the hearsay rule, even though the declarant is available as a witness:
>
> …
>
> (18) **Learned treatises**. To the extent called to the attention of an expert witness upon cross-examination or relied upon by the expert witness in direct examination, statements contained in published treatises, periodicals, or pamphlets on a subject of history, medicine, or other science or art, established as a reliable authority by the testimony or admission of the witness or by other expert testimony or by judicial notice. If admitted, the statements may be read into evidence but may not be received as exhibits.

279 Rule 803 is unlike our section 62(2) because it is a specific hearsay exception for experts and not a general hearsay exception: the out-of-court expert's treatise is admissible only if it is relied upon by the in-court expert in chief or called to his

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190 Ross Andrew Oliver, "Testimonial Hearsay as the Basis for Expert Opinion: The Intersection of the Confrontational Clause and Federal Rules of Evidence 703 After *Crawford v Washington*" 55 Hastings LJ 1539.

attention in cross-examination. For that reason, it has no preconditions as to the manner in which the treatise has been published or as to the unavailability of the out-of-court expert. The treatise merely has to have been "published" and "established as a reliable authority", usually by the in-court expert's own testimony.

I. Recommendations for reform

280 There are obvious concerns arising from the state of our law relating to hearsay relied on by experts. In addition to the common criticisms already elaborated on by the Australian Law Reform Commission and the English Law Commission in their respective reviews, the following are more specific concerns arising in Singapore:

(a) Lack of predictability – Although parties in Singapore do not generally raise technical objections to expert reports based on hearsay, as previously observed, the rule remains in wait to be abused by parties for their tactical advantage.[191]

(b) Since our Evidence Act has expressly repealed all inconsistent common law, it cannot be argued that the English hearsay common law exceptions form part of the law of evidence of Singapore.

281 However, the solution which has been adopted in England (in civil cases), in Australia and in the United States in connection with the factual underpinnings of an expert's opinions has been to enact by statute a wide, general exception to the hearsay rule which incidentally solve the problem caused by the hearsay rule's intersection with the basis rule. It is our view that these issues are best resolved in Singapore too by an overall overhaul of the hearsay rule as it operates under the Evidence Act.

282 The obvious question raised is whether a narrow, stopgap reform operating only in the field of expert evidence is required pending the overall overhaul of the hearsay rule. We do not favour a narrow, stopgap reform. This aspect of the basis rule does not cause significant difficulties in practice. There is therefore no compelling need for a stopgap solution. The risks of such a stopgap solution are that it could be perceived in the interim as encouragement to experts to give evidence beyond their field of expertise or to give expert evidence that was inadequately supported.

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191 See for example *Aw Kew Lim v Public Prosecutor* [1987] 2 MLJ 601, a decision of Chan Sek Keong JC (as he then was) in a case not dealing with expert evidence but in which hearsay evidence was excluded, rightly it is submitted, even though neither party objected to it.

VII. The Strict Basis Rule

A. The strict basis rule

283 A strict application of the basis rule makes compliance with the rule a precondition to admissibility: an opinion is entirely inadmissible if it is based on facts which have not been proven by admissible evidence. A less strict basis rule permits the opinion to be admitted but with much reduced weight.

284 If a strict basis rule is applied, the severe consequences of failure to establish the basis makes it all the more important to establish the test by which it is determined whether the basis of the opinion has in fact been established.

285 This section will consider which species of the basis rule is applied in Singapore and whether it requires reform in light of developments elsewhere.

B. Position in Australia

286 The Australian Law Reform Commission in Report 26 reviewed the common law of Australia and concluded that it was doubtful whether any strict basis rule existed in Australian jurisprudence,[192] although such a rule had been referred to in some academic writing and implied in some cases.[193]

287 The consequence which ensues when the facts as proven at trial vary from the facts which form the basis of the expert's opinion was considered in the case of *Paric v John Holland (Constructions) Pty Ltd*.[194] In that case, the High Court held as follows:[195]

> 9. It is trite law that for an expert medical opinion to be of any value the facts upon which it is based must be proved by admissible evidence (*Ramsay v Watson* (1961) 108 CLR 642). But that does not mean that the facts proved must correspond with complete precision to the proposition on which the opinion is based. The passages from *Wigmore on Evidence* … to the effect that it is a question of fact whether the case is sufficiently like the one under consideration to render the opinion of the expert of any value are in accordance with both principle and common sense.

192 The Australian Law Reform Commission, *Evidence (Interim)* (ALRC Report 26, 1984) Vol 1 at para 750.

193 *Ramsay v Watson* (1961) 108 CLR 642.

194 (1985) 62 ALR 85.

195 (1985) 62 ALR 85 at paras 9 and 10.

> 10. As *Wigmore* states, … the failure which justifies rejection must be a failure in some one or more important data, not merely in a trifling respect.

288 Having reviewed these cases, the Australian Law Reform Commission concluded that the correct proposition at common law was that when the facts proved vary drastically from the facts on which the opinion is based then the opinion may carry so little weight that it is not probative and hence inadmissible. Otherwise the failure to prove underlying facts goes only to weight.[196]

289 In any event the Australian Law Reform Commission concluded that even if a strict basis rule existed at common law, it should not be carried over into the Uniform Acts.[197] The Australian Law Reform Commission saw the following problems as arising from a strict basis rule, *ie* one going directly to admissibility:[198]

(a) It is an inflexible rule which would eliminate opinions of doctors based upon consultations, reports and assistance given by fellow doctors, nurses, technicians, laboratory analysts and patient's relatives and a host of other extrinsic materials unless these facts are independently proved. Those forms of second hand material are customarily relied on by doctors when forming their professional opinion.

(b) It will magnify the gap between the courts and professionals if the law chooses not to accept the use of materials which are routinely relied upon by professionals to form their professional judgments.

(c) Although the value of an expert's opinion insofar as it rests in part on second hand source material may be affected, that should go only to the weight of the opinion and not its receivability as evidence.

(d) It would not only exclude some potentially useful opinions but also discourage experts from getting involved in litigation which in turn would affect the credibility of the trial system.

(e) To allow parties to insist on proof of all bases of expert opinions including non-contentious facts would introduce costly, time consuming and cumbersome procedures. This would be an unfruitful and endless task with which to burden the courts.

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196 The Australian Law Reform Commission, *Uniform Evidence Law* (ALRC Report 102, 2005) at para 9.63.

197 The Australian Law Reform Commission, *Evidence (Interim)* (ALRC Report 26, 1984) Vol 1 at para 750.

198 The Australian Law Reform Commission, *Evidence (Interim)* (ALRC Report 26, 1984) Vol 1 at para 363.

290 The Australian Law Reform Commission therefore clearly intended not to incorporate a strict basis rule in the Uniform Acts. Unfortunately, because the Uniform Acts do not expressly abrogate the rule,[199] the subsequent Australian authorities have not always honoured this intention.

291 The most controversial case that has given rise to the suggestion that the Uniform Acts[200] incorporates a strict basis rule is *Makita (Australia) Pty Ltd v Sprowles*.[201] Although Heydon JA (as he then was) did not expressly endorse a strict basis rule under the Uniform Acts, he held that the following were preconditions to *admissibility* under the Uniform Acts:[202]

(a) it must be agreed or demonstrated that there is a field of "specialised knowledge";

(b) there must be an identified aspect of that field in which the witness demonstrates that by reason of specified training, study or experience, the witness has become an expert;

(c) the opinion proffered must be "wholly or substantially based on the witness' expert knowledge";

(d) so far as the opinion is based on facts "observed" by the expert, they must be identified and admissibly proved by the expert;

(e) so far as the opinion is based on "assumed" or "accepted" facts, they must be identified and proved in some other way;

(f) it must be established that the facts on which the opinion is based form a proper foundation for it; and

(g) the expert's evidence must explain how the relevant field of "specialised knowledge" applies to the material facts assumed so as to produce the opinion propounded.

292 Heydon JA's conditions (d) and (e) have generated the most debate as they can be interpreted as establishing the existence of a strict basis rule under the Acts.

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199 Unlike the express abrogation of the common knowledge rule and the ultimate issue rule.

200 Austin J in *Australian Securities and Investments Commission v Rich* [2005] NSWSC 149.

201 *Makita (Australia) Pty Ltd v Sprowles* (2001) 52 NSWLR 705.

202 *Makita (Australia) Pty Ltd v Sprowles* (2001) 52 NSWLR 705 at para 85.

293 The Australian Law Reform Commission in its latest Report[203] has however discredited this reading of the *Makita* decision. They conclude that Heydon JA's conditions do nothing more than emphasise that incomplete proof of material facts will reduce the *weight* that can or should be given to an expert opinion.

294 Furthermore, where there is a major discrepancy between the facts proved and the facts which form the basis of the opinion, the opinion may carry so little weight that it becomes irrelevant under section 55 of the Uniform Acts and therefore inadmissible.

295 According to the Australian Law Reform Commission, the role of the relevance requirement when determining the admissibility of expert opinion is also at the heart of *Sydneywide Distributors Pty Ltd v Red Bull Australia Pty Ltd*.[204] In that case, Branson J said:

> To be *admissible*, the evidence [of the expert] must … be relevant. It is the requirement of relevance … that as it seems to me, most immediately makes proof of the facts on which the opinion is based necessary. If those facts are not proved, or substantially proved (see *Paric v John Holland (Constructions) Pty Ltd*) it is unlikely that the evidence, if accepted, could rationally affect the assessment of the probability of the existence of the fact in issue in the proceeding to which the evidence is directed. [emphasis added]

296 The Australian Law Reform Commission concluded definitively that section 79 does not by its terms require the factual basis of the expert opinion to be proved as a prerequisite of its admissibility. As held by Gleeson CJ in *HG v The Queen*,[205] section 79 requires only that the expert *expose* the facts upon which the opinion is based sufficiently to enable the court to decide whether the opinion is wholly or substantially based on the application of the expert's specialised knowledge to relevant facts or factual assumptions.

297 To sum up, the Australian Law Reform Commission's view is that the courts merely have to follow the scheme of the Acts when considering the reception of expert testimony. First, they should apply the relevancy provision contained in section 55, then the section 79 requirements and lastly the discretionary provisions of section 135 and section 136.

298 The consensus is, therefore, that the failure to adduce sufficient admissible evidence to prove the factual basis of an expert's opinion does not in Australia result in automatic exclusion of the opinion itself. The courts should exclude the opinion only if

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203 The Australian Law Reform Commission, *Uniform Evidence Law* (ALRC Report 102, 2005) at para 9.69.

204 (2002) 55 IPR 354.

205 (1999) 197 CLR 414.

the foundational facts that have not been proved are so fundamental that without them the opinion carries so little weight that it ceases to be relevant.

299 The Australian Law Reform Commission was of the view that many of the concerns arising from the operation of section 79 could be addressed through strict enforcement of the rules of evidence and guidelines that reflect the criteria set out in the *Makita* decision. Lawyers and expert witnesses should also receive further education and training on these rules and lawyers should be closely involved in the preparation of expert reports. The guidelines should prescribe the matters to be contained in an expert report so as to promote transparency as to the basis of the expert's opinion. Parties would benefit from observing these guidelines as this would make their expert testimony more compelling.[206]

300 In practice, this entire discussion as to whether or not an opinion is defined as inadmissible when its underlying facts are not proven or whether this failure goes only to weight is largely of importance only where the tribunal of fact is a jury.[207] Having said that, even when a judge is a sole arbiter of fact, it could be argued that an early ruling on the admissibility of an opinion helps focus the parties' attention on the real issues in dispute and shorten the trial process. The opposing party will know exactly what case he has to meet which saves him having to adduce expert testimony to contradict an unsubstantiated opinion which in fact may carry no weight at all.

C. Position in England

301 In England too there are mixed messages in the authorities on whether a strict basis rule exists. The main authority that implies such a proposition is again the case of *R v Turner*[208].

302 According to Lawton LJ:

> It is not for this court to instruct psychiatrists how to draft their reports, but those who call psychiatrists as witnesses should remember that the facts upon which they base their opinions *must* be proved by admissible evidence. [emphasis added]

303 But later on he went on to say:[209]

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206 The Australian Law Reform Commission, *Review of the Uniform Evidence Acts* (ALRC Discussion Paper 69, 2005) at paras 8.99–8.106.

207 See *Chamberlain v The Queen (No 2)* [1984] HCA 7, (1984) 153 CLR 521.

208 [1975] QB 834.

209 [1975] QB 834 at 840.

> Before a court can assess the *value* of an opinion it must know the facts upon which it is based. If the expert has been misinformed about the facts or has taken irrelevant facts into consideration or has omitted to consider relevant ones, the opinion is likely to be *valueless*. In our judgment, counsel calling an expert should in examination-in-chief ask his witness to state the facts upon which his opinion is based. [emphasis added]

304 Clearly the wording used by Lawton LJ is ambiguous and does not conclusively lay down a strict basis rule striking at admissibility rather than going to weight. The references to the opinion's "value" or lack of it suggests that it was only weight that was in play and not admissibility.

305 In *R v Bradshaw*[210] the Court of Appeal clearly stated that if a doctor's opinion is based entirely on hearsay and is not supported by direct evidence, it would be proper for a judge to direct the jury that the case was "based on flimsy or non-existent foundation and that they should reach their conclusion with that in mind". There was no mention that the judge should withdraw the opinion from the jury by ruling it inadmissible.

306 The weight of English authority is, therefore, that no strict basis rule exists.

D. Position in Singapore

307 There is no indication in our case law that a strict basis rule exists in Singapore. In the case of *Sek Kim Wah v Public Prosecutor*,[211] Wee Chong Jin CJ stated:

> It would be pertinent at this point to add that the facts on which an expert's opinion is based *must* be proved by admissible evidence, just like any other fact relevant to the case. The expert's role is to explain to the judge the application of the necessary scientific or medical criteria so as to enable the judge to come to his own judgment by the application of this criteria to the facts proved in evidence. [emphasis added]

308 However, as in *Turner*, although the use of the mandatory "must" hints at the consequence of not proving the facts upon which an opinion is premised, the question of whether such failure goes to admissibility or to weight was not expressly considered.

309 *Gunapathy Muniandy v Khoo James*[212] hints at the absence of a strict basis rule in Singapore. A failure to prove the factual basis of an expert's opinion makes the opinion not so much inadmissible as of little or no weight. As the learned judge said:

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210 (1985) 82 Cr App R 79.

211 [1988] 1 MLJ 348.

212 [2001] SGHC 165.

> The court must know the premises on which the expert's opinion is founded, so as to judge the strength of that opinion. The Evidence Act by section 48 provides that 'facts not otherwise relevant are relevant if they support or are inconsistent with the opinions of experts when such opinions are relevant'. The underlying jurisprudential basis of this provision is that unless an opinion is based on proven facts and findings it would be *speculative and useless*. [emphasis added]

310 Having quoted Lawton LJ in *Turner*, the learned judge went on to discuss the significance of section 53 of the Evidence Act which provides that "whenever the opinion of any living person is relevant, the grounds on which such opinion is based are also relevant".

311 His Honour quoted *Sarkar on Evidence* on the rationale of section 53:

> The soundness or otherwise of the opinion expressed must depend to a large extent on the reasons on which the opinion is held. If the grounds are known, the value of the opinion may be increased or lessened … [emphasis added]

312 In Singapore, therefore, the weight of authority suggests that a failure sufficiently to prove facts underlying an expert opinion will affect only the weight accorded to the opinion. Even if the failure to prove the foundational facts is so extensive as to deprive the opinion of any basis at all, the opinion will thereby be rendered useless and irrelevant, rather than inadmissible.

E. Recommendations for reform

313 The weight of authority in Singapore is that the basis rule goes merely to weight and not to admissibility. In our view, this is the position which the law ought to take, particularly as there is no jury to be shielded from potentially unreliable evidence for fear that they will attach too much weight to it.

314 We therefore do not recommend any legislative modification of the common law position on this aspect.

VIII. Conclusion

315 The fundamental purpose of expert evidence is to assist the court in achieving its ultimate goal: rectitude of decision without unnecessary delay or expense. The combined result of our Victorian evidence code and the *ad hoc* development of the evidential principles set out in it at common law is that the four issues identified above pose a significant obstacle to achieving this goal.

316 The reforms proposed in this paper are therefore designed to ensure that the task of judges in achieving rectitude of decision in matters where expert evidence is of

assistance receives sufficient illumination but is not made "dark with excessive brightness".